SUBJECT INDEX TO VOLUME 62[1]

All new names are printed in *italics*

A

Abacus hystrix, 1447
Abax, 910
Abundance of: sunflower moth, 1461
  Tabanidae, 1429
Acanthocephala femorata, 61
  terminalis, 469
  terminalis, immature stages, 474
Acanthocerinae, 1393
Acanthocerus, 875, 1393
Acarid mites, biology, 102
Acarina, 102, 269, 285, 406, 628, 649, 660, 747, 858, 898, 978, 1035, 1161, 1261, 1446, 1465
Acarine molting of Caloglyphus berlesei, 155
Acarus siro, population parameters, 1161
Aceria tulipae, dispersal, 1446
Acerophagus texanus, 1118
Acheta, 711
  domesticus, 243, 712
Achroblatta, 200
  luteola, 201
Achrysopophagus dactylopii, 1119
Acmaeodera acuta, 210
  adenostomae, 210
  angelica, 210
  coquilletti, 210
  dohrni, 210
  dolorosa, 210
  fenyesi, 210
  gemina, 210
  hepburni, 210
  holsteni, 210
  jocosa, 210
  nexa, 211
  perlanosa, 211
  plagiaticauda, 211
  prorsa, 211
  pulchella, 212
  quadriseriata, 211
  sinuata, 211
Acoma, 1394
  sp., 1390
Acoustic sensitivity of European corn borer, 1364
Acrolophus sp., 355
Acropimpla pronexus, 1471
Acta Entomological Sinica, advertisement, 458
Actenodes acornis, 212
Actia interrupta, 1471
Aculodes dubius, 1447
  mckenziei, 1447
Acupalpus, 910
Acyrthosiphon pisum, 48
  cornicles, 1015
  correlation with salivation activity, 1398
  probing behavior, 987
  temperature and light effects on dispersal, 1185
Adelges piceae, 1004
  predator of Aphidecta obliterata, 718
Adelocephala heiligbrodti, 355
  hogei, 355
Adesmia, 237
Adoretus, 877
Aedes aegypti, 329, 605, 1091, 1326, 1458
  aegypti, amino acids in, 742
  aegypti, melanization in eggs, 7
  aegypti, proventicular neural tissue of larvae, 345
  albopictus, 329, 1326
  atlanticus, 243
  atropalpus, 329
  canadensis, 55
  communis, 608
  infirmatus, 867
  mascarensis, 329
  melanimon, 608
  nigromaculis, 605
  pseudoscutellaris, 329
  scutellaris, 329
  sierrensis, 329, 605
  sticticus, 866
  taeniorhynchus, pupation rhythm in, 1079
  togoi, 329
  triseriatus, 329
  triseriatus, proventicular neural tissue of larvae, 345
  ventrovittus, 608
  vexans, 866
  vexans, dimorphism in, 914
  vexans, feature photograph, 253
  vittatus, 329
Aegialia, 876, 1393
  sp., 873
Aegidium, 876
  asperatum, 1389
Aegus, 870
Aenasius advena, 1118
Aeropedellus clavatus, 453
Africablatta, 196
Afroneura, 198
Agapostemon, 653
  femoratus, 654
  nasutus, 657
  pura, 655
Agathis sp., 1463
Agathymus aryxna, 356
  polingi, 356
Ageneotettix d. deorum, 453
Agistemus exsertus, life history, 649
Agistemus exsertus, predator of mites, 660
Agmoblatta thaxteri, 193, 596
Agonoderus pallipes, 911
Agonum, 910
  lutulentum, 911
  placidum, 911
  thoreyi, 911
Agrapha aerea, 508
Agricleptes, 79
Agricoris, 84
Agrilus abjectus, 212
  angelicus, 211
  arcuatus, 212
  bilineatus, 212
  blandus, 211
  politus, 211
  ruficollis, 212
Agriocleptes, 84
Alarm pheromone in ant, 1212
Aleocharinae, new tribe, genus, and species of, 1189
Alfalfa seed chalcid infestation, uric acid analysis, 1379
Alfalfa weevil, biology, 1485
  humidity preference, 904
  kinetic orientation behavior, 1241
  mating competition in, 956
Algarobius prosopis, 213
Alimentary canal of honey bees, pollen through, 43
Aliphatic ketones and alarm behavior, 380
Allacta, 194
Allidostoma, 875
Allidostominae, 1393
Almond moth, egg suitability for parasitism, 1482
Alycaulini, 1352
Alydus sp., 965
Amara apricaria, 911
  cupreolata, 911
  familiaris, 911

[1] Compiled by Gladys O. Visel

Amathes c-nigrum, climbing responses, 1403
larval responses to wavelengths, 941
Amauromorpha sp., 800
Amazonina, 194
sp., 596
Amblymerus sp., 109
verditer, 1471
Amblyomma americanum, 629, 1208
Ambrosia beetles, interrelationships and microbes, 413
American cockroach, oxygen consumption, 1313
Amino acid analysis of honeydew, apple maggot diet based on, 19
in Aedes aegypti, 742
Amino acids in boll weevil hosts, 255
Amphasia, 910
Amphiagrion abbreviatum, 264
saucium, 265
Amphicoma, 875
(Eulasia) bombylius, 1389
meles, 873, 1392
Amphidasis cognataria, 355
Amphimallon, 876
Amulius, 87
bipustulatus, 89
Amydria effrentella from mountain beaver nests, 396
Anacanthopus, 694
Anachalcos, 876
cupreus, 1392
Anagasta kuehniella, 662, 791
Anagrapha falcifera, 508
Anagyrus sp., 1118
Anallacta, 197
Anamesia, 192
douglasi, 180
serrata, 192
Anaphes flavipes, biology of, 1316
Anaplasmosis, Culicidae and Tabanidae vectors of, 863
Anaplecta, 197
bivittata, 185
Anaplectella, 197
Anaplectoidea, 197
Anastatus sp., 752
Anastrepha ludens, 917
Anatomy of scolytids, 995
Anatopynia dyari, 98
Ancognatha, 877
Aneurinita, 194
Aneuristus youngi, 856
Anicetus annulatus, 856
Anisodactylus discoideus, 911
pallipes, 911
rusticus, 911
terminatus, 911
Anisogamia, 194
Anisota senatoria, A. stigma, and A. virginiensis, sex determination of pupae, 931
Annals of Entomological Society of America, advertisement, 442
Anomala, 877
orientalis, 1388
Anopheles crucians, 866
culicifacies, host preferences, 1270
freeborni, 605
pseudopunctipennis franciscanus, 14, 608
punctipennis, 14, 866
quadrimaculatus, 243, 329, 866
quadrimaculatus, proventicular neural tissue of larvae, 345
Anoplognathus, 877
Ant, fungus-growing, nutrients from fungus cultured by, 11
Ant-fungus symbiosis, 386
Antennal sense organs of Culex tarsalis, 1455
Anthaxia aeneogaster, 211
Anthonomus grandis, 235, 315, 511, 542, 602, 891, 976
grandis, amino acids in hosts, 255
grandis, melatonin effect on egg production, 252
grandis, new parasites of, 674
grandis, preference among hosts, 261
sexguttatus, 210
Anthypna, 875
Antibiotics, absence in ant-fungus symbiosis, 386
Antioquita, 200
Antitheton, 197
Anurogryllus muticus, life history, 337
Aonidiella aurantii, reproduction in, 935
aurantii, response of two strains, 279
Apalonychus, 875
Apanteles buttricki, 1463
congregatus, 125
epinotiae, 1463
fumiferanae, 1471
glomeratus, 125
homoeosomae, 1463
militaris, high temperature response of, 1303
petrovae, 1471
polychrosidis, 1471
schoenobii, 798
sp., 164, 288, 800, 1471
Apantesis proxima, 355
Apatelodes pudefacta, 355
Aphaenogaster tennesseensis, 483
Aphaereta spp., 778
Aphelinus semiflavus, hyperparasitism, 1207
Apheloria montana, 60
Aphidecta obliterata, feeding behavior, 1004
identification and sex determination, 718
Aphids, change in transmissibility of bean yellow mosaic virus, 47
repellency of citrus leaves to, 399
Aphidius pisivorus, 1207
pisivorus, temperature and light effects on dispersal, 1185
pulcher, 1207
Aphis craccivora, 399
gossypii, 399
nasturtii, 853
spiraecola, 399
Aphlebiella, 196
Aphodiinae, 1393
Aphodius, 876
fimetarius, 871, 1390
hamatus, 1394
lividus, 1394
tasmaniae, 570
Apholate, biochemical effects, 1091
Aphonides, 877
Aphonus, 877
Aphycus flavus, 856
luteolus, 300
maculipes, 856
pulvinariae, 856
sp., 857
stanleyi, 300, 857
Apiomerines, 84
Apiomerini, 92
Apiomerus, 84
crassipes, 86
Apis mellifera, 43, 61, 243, 277, 964
Aplodontia rufa, moth from nests, 396
Aplomya caesar, 1471
Aplosterna singularis, 688
virescens, 684
Apoanygrus trinidadensis, 1118
Apocrisias thaumasta, 355
Apogonia, 876
Aporia crataegi, 125
Apparatus for recording insect emergence, 1494
Apple maggot, development of diet, 19
Aquatic beetle, internal damage in, 921
Aradamorpha, 92
Araeoschizus armatus, 1170
Arawakina, 194
Arbiblatta, 197
Archilestes californica, 264
Archimandrita, 200
tessellata, 201
Archimerus alternatus, 469
alternatus, immature stages, 477
Archips sp., 355
Archytas apicifer, 251
Arenivaga, 194
(Psammoblatta) africana, 194
Argas (Persicargas) arboreus, 890
(P.) persicus, 885
(P.) *walkerae*, from fowl, 885
(P.) zumpti, 890
Argia vivida, 264
Argyresthia franciscella and A. cupressella, biology, 109
Argyrogramma verruca, 508
Argyrotaenia pinatubana, 5
velutinana, vitamin requirements, 611
Aristiger, 197
Armadillidium, 711
vulgare, 712
Army ants, Trichatelura manni associated with, 1367
Arphia conspersa, 453
p. pseudonietana, 453
Arthropods, calcium, potassium, and sodium content of, 57
radiation sensitivity, 711
Arzama densa, life history of, 749
Asaphe vulgaris, pea aphid parasite, 1207
Asemoblattana, 197
Aseucina, 194
Aspen, oviposition of Saperda and Oberea in, 308
Aspiduchus, 200
cavernicola, 201
Astata, 963
aspera, 970
kohli, 970
Astatinae, species in genus Dryudella, 963
Asteromyia, 1353
basalis, 1354
euthamiae, 1354
Nearctic species, 1354
tumifica, 1354

Astictoneura, 1357
muhlenbergiae, 1357
Ataenius, 876, 1393
Ataxigamia, 200
Ateloblatta, 200
Ateuchus, 876
Atrometus sp., 164
Atta colombica tonsipes, 386
cellulose-utilizing capability, 1386
nutrients from fungus cultured by, 11
Attack activity of gnats, 112
Attagenus, 711
piceus, 712
sp. (elongatulus?), 768
Attaphila, 194
Atteva punctella, 355
Atticola, 194
mortoni, 195
Atylotus, 1430
Auclara elliotti, 453
Audreia, 200
(?) malaisei, 202
Augochlora, 653
Augochlorella, 653
edentata, 657
Augochloropsis, 653
Aulacocylus, 870
Aurungabada, 689
singularis, 689
Austrostylopyga, 192
Autographa biloba, 508
Automeris pamina, 355

B

Bacillus cereus, 1432
Bactrodes femorata, 90
Bactrodines, 88
Bagworm, lethal effects of gamma radiation on, 1113
Bakericheyla chanayi, morphology and biology, 858
faini, 861
microrhyncha, 861
Balsam woolly aphid predator, 1004
Balta, 194
Bantua, 200
Barbarea vulgaris as host to crucifer fauna, 852
Barley, stored-grain insects in, 1011
Bassareus clathratus, 211
sellatus, 211
Bassus sp., 109
Battus philenor, 356
Beharus, 84
Behavior (see Methods)
Behavioral analysis of photoreceptors of mite eyes, 466
Bembidion, 910
quadrimaculatum, 853
Bergrothella rufipes, 81
Bertholdia trigona, 355
Bibliographia Araneorum, advertisement, 458
Bimodal emergence of cecropia moths, 1422
Biochemical effects of apholate, 1091
Bioclimatic studies of Praon exsoletum, 1026
Biological: characteristics of Ips pini, 480
notes on hickory shuckworm, 1401
Biologically active materials, results of tests, 671
Biology, and immature stages of Eumetopiella rufipes, 227
Biology of: acarid mites, 102
alfalfa weevil, 1485
Anaphes flavipes, 1316
Argyresthia franciscella and A. cupresella, 109
Bakericheyla chanayi, 858
Brachycoryphus nursei, 1382
Cercerini, 209
Cheiloneurus noxius, 299
clerid beetles, 924
Dryudella, 964
Eriophyes emarginatae, 269
grasshopper, 881
Ips pini, 480
Margarodes vitium, 1032
Melichares tarsalis, 747
Mesidia nigra, 532
Orgilus lepidus, 1407
Orthacheta hirtipes, 785
Scythropus californicus, 117
Tetranychus evansi, 898
Biometrical study of grasshopper wing development, 419
Bionoblatta, 200
Bionomics of: Eucosma monitorana, 1284
juniper webworm, 287
Perilimnia and Shannonia, 572
Pogonomyrmex occidentalis, 1166
Blaberidae, 182
Blaberus, 200
craniifer, 178
discoidalis, 178, 596
discoidalis, sexual characters of, 734
giganteus, 178
giganteus, rearing and maintenance of, 1311
parabolicus, 201
Black flies: new species of Simulium, 157
of Panama, 281
Blackburnium, 874
quadriarmigerum, 874, 1392
Blacklight, attraction of Nantucket pine tip moth to, 443
Blaesoxipha hunteri, 741
opifera, 741
reversa, 741
Blaps, 237
Blaptica, 200
dubia, 201
Blatta, 192, 711
orientalis, 178, 596, 712
Blattaria, male tergal glands in, 176
spermatophores of, 595
Blattella, 196, 711
bisignata, 190
germanica, 176, 596, 666, 712
humbertiana, 190, 596
l. lituricollis, 190
lobiventris, 199
n. sp., 199
sauteri, 190
sp., 190
unicolor, 190, 596
vaga, 178
Blattellidae, 181
Blattidae, 179
Blepyrus insularis, 1118
Blister beetles, ontogeny of, 27
Bolbelasmus hornii, 1392
Bolbites, 876
Bolboceras, 874
(Odontaeus) obesus, 1389
Bolboceratini, 1391
Bolbocerosoma, 874
Boll weevil, amino acids in hosts, 255
chemosterilization, 511
early behavior, 602
Hampea sp. host, 315, 976
Hampea sp. resistance to, 542
Heterolaccus grandis parasite of, 235
hydrocarbon metabolism in, 891
melatonin effect on egg production, 252
new parasites of, 674
preference among hosts, 261
Bollworm, mating behavior of moths, 1120
response of moths to ultrasound, 801
Bombyx mori, 141
Bothynus, 877
rainfall and spring emergence, 1336
Bovicola crassipes and B. limbata, colonization, 826
Brachycoryphus nursei, biology, 1382
Brachycybe lecontei, 60
petasata, 60
Brachymeria compsilurae, 1471
sp., 800
Brachypterolus pulicarius, 853
Brachystola magna, 453
Bracon chinensis, 799
gelechiae, 164
hebetor, 791
n. sp., 164
sperm, chemosterilant studies on, 790
Bradycellus rupestris, 853
Bradycinetulus, 874
ferruginius, 874
Bradynotes obesa, 453
Bradysia trifurca, 541
Brevicoryne brassicae, 854
Brown: cockroach, note on, 678
soft scale in citrus groves, 855
Bruchophagus roddi, 1379
Bruchus julianus, lectotype, 676
Bruneria brunnea, 453
Bryobia rubrioculus, 1262
Bubas, 876
Bucolion, 194
Buprestis consularis, 212
fasciata, 212
lineata, 212
maculipennis, 212
rufipes, 212
striata, 212
Burchellia, 197
circumcincta, 187
neavei, 199
Butterfly, color receptors in eye, 1497
Byrsotria, 200
fumigata, 189, 596

C

Cactobrosis fernaldialis, 355
Cadra cautella, egg suitability for parasitism, 1482

Caenohalictus, 655
rostraticeps, 658
scitulus, 658
Caffroblatta, 194
Cage to study root wounding of pine, 1499
Cahita, 197
Calamomyia, 1356
agrostis, 1356
danthoniae, 1356
echinochloa, 1356
inustorum, 1356
liriodendri, 1356
panici, 1356
phragmites, 1356
squamosa, 1356
tiliagenea, 1356
Calathus, 910
Calcium content of arthropods, 57
Calhypnorna, 196
sp., 196
California red scale, marking, 558
reproduction, 935
response of two strains, 279
Calliclopius, 84
nigripes, 86
Callosobruchus maculatus, 173
Caloblatta, 196
lampra, 196
sp., 196
Caloglyphus anomalus, 103
berlesei, acarine molting, 155
Calolampra, 200
characterosa, 201
irrorata, 201
Calosoma, 910
peregrinator, scent fluid, 1498
Cambala annulata, 60
Cambium miner activity, 932
Camnula pellucida, 453
Camponotus americanus, 61
fumidus festinatus, 764
pennsylvanicus, 61
Campopeltis perdistinctus, 251
Camptoneuromyia, 1360
Campylorhyncha, 82
femoralis, 83
Canthon, 876
Capris fricator, 873
Capucina, 200
patula, 178, 596
Capucinella, 200
delicatula, 201
sp., 201
Carabus, 910
Carbaryl against mealybug, 1117
Carbrunneria, 197
Cardiochiles nigriceps, morphology, 1414
Carex subfusca, 530
Cargida pyrrha, 356
Cariacasia, 200
Cariblatta, 194
lutea, 196
minima, 196, 596
sp. B, 183
sp. nr. instigator, 199
Cariblattoides, 194
piaiensis, 199
sp. nr. instigator, 187
Caripeta aequaliaria, 355
Carrot beetle, rainfall conditions for spring emergence, 1336
Cartoblatta, 192
unicolor, 179
Castnia mygdon, 355
Catara, 193
rugosicollis, 179
Caterpillars, identification of plusiine, 507
Catharsius, 876
molassus, 1392
Cecidomyia cerealis, 1352
obtusa, 1359
Cecropia moths, bimodal emergence of, 1422
Celatoblatta, 193
notialis, 180
pallidicauda, 180
undulivitta, 180
vulgaris, 180
Celeriblattina, 197
Celerio lineata, 355
Cellulose utilized by fungus, 1386
Centorhynchus americanus, 853
puberulus, 853
Centrocneminae, 79
Centrococcus insolitus, 952
Cephalodesmius, 876
Cephenemyia jellisoni, occurrence in deer, 1208
Ceracupes, 870
arrowi, 873
Ceratinoptera, 197
nahua, 193
picta, 193
sp., 187
tropaia, 193
Cercerini, biology, 209
Cerceris atramontensis, 210
b. bicornuta, 210
bicornuta fidelis, 210
blakei, 210
californica, 210
c. clypeata, 211
c. compacta, 211
femurrubrum athene, 211
f. finitima, 211
f. flavofasciata, 211
flavofasciata floridensis, 211
f. frontata, 211
frontata raui, 211
fumipennis, 211
halone, 212
macrosticta, 213
n. nigrescens, 212
robertsonii emmiltosus, 212
r. robertsoni, 212
r. rufinoda, 212
simplex graphica, 213
simplex macrosticta, 213
tapaneca, 213
truncata, 213
Cereal leaf beetle, Hyalomyodes parasitizing, 923
Ceruchus, 870
Cerura scolopendrina, 356
Cetherinae, 79
Ceuthobia, 198
Ceuthobiella, 198
Ceutholiphus gracilipes, 61
Ceutorhynchus topiarius, 1294
Chaetocnema pulicaria, 211
Chaetodus, 875
Chaetopsis apicalis, 231
fulvifrons, 229
Chaetosiphon fragaefolii, 1490
Chalepus dorsalis, 211
Chasmapterinae, 1393
Chaunanthus, 1393
Cheiloneurus noxius, biology, 299
Cheiroplatys, 877
Chelonus altitudinus, 1463
texanus, 251
Chemical (see Methods)
Chemoreceptors in Hybomitra lasiophthalma, starvation effect on, 1217
Chemosensory relationship between Epilachna vigintiocto-punctata and Luffa aegyptiaca, 928
Chemosterilant studies on Bracon sperm, 790
Cherry-laurel foliage in insect-killing jar, 242
Chilo suppressalis, 797
Chilocorus cacti, 858
Cheiloneurus albicornis, 856
sp., 857
Chilophaga colorati, 1358
Nearctic species, 1358
tripsaci, 1358
Chilotraea polychrysa, 797
Chironomidae in stabilization lagoons, 97
Chironomus riparius, 98
Chlaenius, 910
pusillus, 752
Chlamisus nodulosa, 211
plicata, 211
sp., 212
Chlorion aerarium, 342
Chlorotabanus crepuscularis, 866, 1203
Chlosyne lacinia, trail laying by, 674
Chnaunanthus, 876
Cholesterol-4-^{14}C, metabolism of, 1021
Chorisia, 197
Chorisoblatta, 194
Chorisoneura, 197
sp., 187
vitrocincta, 199
Chorisoneurodes, 197
Choristima, 197
Choristimodes, 197
Choristoneura fumiferana, 1469
pinus, parasite influence on, 1469
Chorizagrotis incoccina, 356
Chorthippus curtipennis, 453
Chrastoblatta, 194
Chromatonotus, 194
colorata, 199
heterus, 195
lamprus, 199
notatus, 199
quarequae, 199
Chromosome: elimination in Hessian fly, 1095
numbers in formicine ants, 455
Chrysobothris azurea, 212
blanchardi, 212
deleta, 211
dentipes, 212
femorata, 211, 212
floricola, 212
lecontei, 212
lesueuri, 212
lucana, 211
purpureovittata, 212
quadriimpressa, 212

sexsignata, 212
verdigripennis, 212
Chrysomela scripta, defensive mechanisms, 503
Chrysomya rufifacies, 450
Chrysopa bimaculata, 857
rufilabris, 858
Chrysops, 1203, 1430
aberrans, 54, 1430
callidus, 54, 1431
calvus, 54, 1430
celatus, 1430
cincticornis, 54, 1430
cuclux, 1430
dimmocki, 54, 1431
flavidus, 867, 1045, 1203
flavidus var. celatus, 54
frigidus, 54, 1430
geminatus, 55, 1430
hinei, 54, 1431
indus, 54, 1430
lateralis, 1430
macquarti, 54, 1431
montanus, 54, 1430
niger, 54, 1430
pudicus, 54, 1430
sackeni, 54, 1433
univittatus, 54, 1431
vittatus, 54, 1430
Chryxinae, 79
Cicindela sexguttata, 61
Cineretis, 877
Cinyra gracilipes, 212
Cionella lubrica, 853
Citheronia splendens, 355
Citrus groves, brown soft scale in, 855
Clausiadinychus, 64
Clausicella neomexicana, 1463
Cleontes, 87
ugandensis, 88
Cleonus pulvereus, 211
Clerid beetles, biology, 924
Climbing responses of spotted cutworm, 1403
Clivina, 910
Cloeotus, 875, 1393
gibbosus, 873
Coccinella septempunctata, 1207
Coccophagus cowperi, 303
flavifrons, 856
lycimnia, 856
noxius, 300
scutellaris, 300
spp., 303
Coccus hesperidum, 855
Cochliomyia hominivorax, 21
macellaria, 614
Cockroach, malpighian tubules, activity, 725
neotropical, systematics, 617
neurotropic drugs on, 370
Coelodes, 875
Coenonycha, 876
Colaspis brunnea, 211
favosa, 212
Coleomegilla maculata, 752
Coleoptera, 1, 27, 39, 117, 134, 169, 235, 236, 252, 255, 261, 308, 315, 319, 413, 444, 448, 450, 454, 480, 503, 511, 567, 592, 602, 647, 664, 675, 676, 718, 722, 730, 763, 808, 835, 838, 846, 869, 904, 909, 922, 924, 927, 928, 953, 956, 976, 995, 1004, 1008, 1189, 1205, 1232, 1241, 1268, 1292, 1331, 1336, 1388, 1485, 1492, 1493, 1495, 1498, 1499
prey to Cercerini, 209
Colias cesonia, 356
eurytheme, 356, 1497
Collecting methods for Tabanidae, 50
Collops vittatus, 766
Colonization of goat biting lice, 826
Colopteroblatta, 200
Color receptors in butterfly eye, 1497
Common cattle grubs, intake of phosphate by, 843
Compounds related to juvenile hormone, 667, 668
Compsodes schwartzi, 191
Comptoneuromyia, Nearctic species, 1361
Conifer roots, Pemphiginae associated with, 1128
Conotrachelus naso, 210
nenuphar, 210
posticus, 210
sp., 212
Conozoa wallula, 453
Conspicua species-group of Typhlodromina, 406
Control: methods for Argyresthia, 109
of parasites of rice stem borers, 797
Copidosoma deceptor, 1471
Copris, 876
minutus, 871
Coptotermes formosanus foraging galleries, 536
Coquillettidia perturbans, 866
Coranopsis, 79
Coranus, 79
Cordilura (Achaetella) deceptiva, 787
(A.) deceptiva, immature stages, 775
ontario, 787
(Cordilurina) pleuritica, 787
setosa, 784, 787
spp., Orthacheta predator of, 785
(Achaetella) varipes, 787
(A.) varipes, immature stages, 775
Coreidae, immature stages, 469, 474, 477
Corimelaena montana, 964
Corn: rootworm, lipolysis of triglycerides during storage of eggs, 675
Corn stunt vectors, 770, 773
Cornicles of pea aphid, 1015
Corticeus sp., 483
Corynura, 653
(Callochlora), 653
lepida, 659
rubella, 659
Coscinoptera dominica, 211
Cosmozosteria, 192
maculimarginata, 190
zonata, 192
Cotalpa, 877, 1394
Cotinis, 877
Cratoscelis, 875, 1393
Cratypedes neglectus, 453
Cremastocheilus, 877
knochi, 1174
Crematogaster, 711
cerasi, 483
clara, 505
depilis, 764
lineolata, 712
peringueyi, alarm pheromone in, 1212
Crickets, systematics and behavior of, 752
Cryptocephalus binominus, 211
bivius, 211
guttulatus, 211
mutabilis, 211
notatus, 211
notatus fulvipennis, 211
notatus quadrimaculatus, 211
sp., 211
Cryptocercus, 192
rohweri, 764
Cryptolestes ferrugineus, 1011
Crystals in epithelium of flea, 249
Ctenicera destructor, eggs, 567
Ctenolepisma campbelli, 1373
longicaudata, 1372
Ctenoneura, 194
Ctenophthalmus agyrtes, 249
bisoctodentatus, 249
sp., 249
Ctenucha venosa, 355
Culex apicalis, 14, 605
erraticus, 866
erythrothorax, 605
fatigans, 1458
peus, 14, 605
pipiens, 328, 1458
pipiens fatigans, esterase isozymes in, 1307
p. pipiens, 605
pipiens quinquefasciatus, 605
restuans, 14
salinarius, 866
tarsalis, 605
tarsalis, antennal sense organs, 1455
tarsalis, seasonal occurrence and physiology, 13
territans, 451
thriambus, 14, 608
Culicidae vector of Anaplasmosis, 863
Culicoides, 864
and water, 929
arboricola, 1157
baueri, 1157
bermudensis, 1157
bickleyi, 1157
biguttatus, 1157
chiopterus, 1157, 1160
crepuscularis, 1157
debilipalpis, 1157
furens, 1153
furens, larval development in, 702
guttipennis, 1157
haematopotus, 1157
hinmani, 1157
hollensis, 1153
melleus, 1157
nanus, 1157
niger, 1157
oklahomensis, 1157, 1160
ousairani, 1157
paraensis, 1157
phenology, 1153
phlebotomus, 929
spinosus, 1157
stellifer, 1157
travisi, 1158
variipennis, 1158
variipennis sonorensis, 112
venustus, 1158
villosipennis, 1157
Culiseta incidens, 14, 605
inornata, 14, 605
Culture method for Rhynchosciara, 94

Cupressacea, Argyresthia on ornamental, 109
Curculio confusor, 212
nasicus, 211, 212
rectus, 212
Cyclocephala, 877
Cyclogastridea nigromarginalis, 681
Cycloneda sanguinea, 858
Cylindricaulus, 870
Cymindis, 910
Cyrtoria, 200
Cyrtoxipha, systematics and acoustic behavior, 945
columbiana, 946
confusa, 946
gundlachi, 945
nola, 946

D

Dacus oleae, 1290
Dalbulus maidis attractancy to dent corn, 770, 773
Dalcerides ingenita, 355
Damage: of pine root tip weevil, 838
to Monterey pine by Scythropus, 117
Danaus gilippus, 356
plexippus, 356
Dasineura virginica, 1361
Dasyblatta, 194
Dasyvalgus, 877
Datana ministra, sex determination of pupae, 931
DDT, mosquito resistance to, 1270
Defensive: mechanisms in Chrysomela scripta, 503
setae of dermestid larvae, 763
Delocephalus, 694
miniatus, 694
Delosia, 194
Deltochilum, 876
gibbosum, 1390
Dendarus, 237
Dendroblatta, 194
callizona, 195
dryas, 195
sobrina, 195, 596
Dendroctonus frontalis, 103, 1008
obesus, egg production, 448
ponderosae, Laphria gilva predator of, 1237
Density in mosquitoes, 1325
Dent corn, corn stunt vectors and, 770, 773
Deraiophorus, 64
Dermacentor variabilis, 629
Dermestes maculatus, 173
Dermestid larvae, hastate setae of, 763
Derocalymma, 200
Deropeltis, 192
erythrocephala, 192
Desmozosteria, 193
Dewittea, 194
Diabrotica longicornis, 853
Diabrotica spp., 675
undecimpunctata howardi, 675, 1091
virgifera, 675, 808
Diadegma sp., 1464
Dialictus, 653
herbstiellus, 658
rohweri, 658
spinolae, 659
Dialytes, 876
Diamesa arctica, midwinter breeding flight, 1204
poultoni, 1204
Diapause: photoperiodic induction in winter tick larvae, 285
in Apanteles congregatus, 125
of tobacco hornworm, 1252
Diaspidines, 87
Diaspidini, 92
Diaspidius, 87
scapha, 88
Diatraea, excision of gonads from, 457
saccharalis, 21, 456
Diazinon against mealybug, 1117
Dicaelus dilatatus sinuatus, 61
f. furvus, 61
purpuratus, scent fluid, 1493
splendidus, 1493
Dicera americana, 212
caudata, 212
divaricata, 212
lurida, 212
obscura, 212
punctulata, 212
Dichelonyx, 876
Dichirotrichus, 910
Dichomeris marginella, 287
Dichotomius, 876
carolinus, 873, 1392
Dichromina, 877
Diciostaurus maroccanus, 881
Dicogaster coronado, 355
Dicraeodon, 875
Dictyoblattella, 194
Didimus, 870
Diet (see Methods)
Dimorphism in Aedes vexans, 914
Diphyllostoma, 870
Diploplectron, 963
Diploptera, 200, 617
punctata, 178, 596
Diplotaxis, 876
sierrae, 872
Diprion similis, 1
similis, hemocytopoietic organs in larvae, 1259
Diptera, 7, 13, 19, 50, 112, 136, 157, 227, 281, 292, 327, 345, 388, 446, 450, 451, 572, 605, 677, 702, 742, 775, 785, 828, 843, 863, 915, 917, 923, 929, 932, 1021, 1043, 1046, 1079, 1091, 1095, 1101, 1153, 1203, 1204, 1205, 1208, 1217, 1237, 1270, 1290, 1307, 1325, 1348, 1419, 1429, 1455
effects of irradiation on, 613
Dispersion of white-pine weevils, 835
Dipteretrum, 196
Dirophanes banksianae, 1469
Dispersal of Aceria tulipae and other mites, 1446
Dissosteira carolina, 453
spurcata, 453
Distribution (see Methods)
Diversinervus elegans, 300
Dixidesmus erasus, 60
Dociostaurus cephalotes, 881
curvicercus, biology of, 881
genei, 881
Domestic animals, relict parasite of, 415
Doradoblatta, 197
Dorata sp., 355
Dorcaschema alternatum, 1214
wildii, 1214
Dorcus, 870
Dorylaea, 193
brunneri, 193
Drabhea, 197
dichroa, 199
Drosophila ananassae, 1102
bandeirantorum, 1102
busckii, 1102
calloptera, 1102
caponi, 1102
cardini, 1102
cardinoides, 1102
castanea, 1102
emarginata, 1102
equinoxialis, 1102
fulvimacula, 1102
fumipennis, 1102
griseolineata, 1102
hydei, 1102
immigrans, 1102
latifasciaeformis, 1102
lowei, new Obscura group, 388
mediostriata, 1102
melanogaster, 1102
melanogaster, sexual stimulation of males, 1419
natural population, 1101
nebulosa, 1102
pallidipennis, 1102
paranaensis, 1102
paulistorum, 1102
polymorpha, 1102
prosaltans, 1102
pseudoobscura, 392
repleta, 1102
simulans, 1102
sturtevanti, 1102
sucinea, 1102
tolteca, 1102
tropicalis, 1102
willistoni, 1102
Dryadoblatta, 200
Drymaplaneta, 193
Drymus sylvaticus, 965
Dryudella, American species, 963
aspera, 963
asperiformis, 970
bella, 974
caerulea, 967
elegans, 972
florissantensis, 968
immigrans, 974
kohli, 963
millsi, 970
montana, 968
pernix, 972
picta, 970
pinguis, 968
rhimpa, 970
stigma, 963
tricolor, 964
Duchailluia, 192
n. sp., 192
Duryodana, 196
palpalis, 196
Dyakinodes, 197
Dynastes, 877
Dynastinae, 1394

Dyscinetus, 877
trachypygus, 872
Dyslobus lecontei, 209
segnis, 213
Dysticheus rotundicollis, 213

E

Eacles imperialis, 355
Eastern subterranean termite, feeding responses, 335
Eciton, 1367
burchelli, 1368
dulcius crassinode, 1368
d. dulcius, 1367
hamatum, 1368
mexicanum, 1368
vagans, 1368
Ecology of Ips pini, 483
Ectinoderines, 87
Ectinoderus, 79
sumptuosus, 89
Ectobiola, 197
Ectobius, 197
lapponicus, 178
pallidus, 178
panzaeri servillei, 181
spp., 181
sylvestris, 178
Ectoderini, 92
Ectoneura, 197
Ectrichodiinae, 79
Edestochilus, 1358
allioides, 1359
Edestosperma, 1356
aristidae, 1357
Egg: production of Engelmann spruce beetle, 448
suitability for Trichogramma parasitism, 1482
Egyptian alfalfa weevils, sexual dimorphism in, 1268
Eidmanniella, 818
albescens, 822
eurygaster, 820
nancyae, 821
pellucida, 819
pustulosa, 821
review of genus, 815
subrotunda, 820
sula, 822
Elachertus pini, 164
Elasmodeminae, 79
Elenchus tenuicornis, 669
Eleodes opacus, 213
Elimination of chromosomes in Hessian fly, 1095
Ellipsidion, 194
affine, 178
australe, 178
Elliptoblatta, 200
Elm spanworm eye size, 561
Emergence, controlled apparatus for recording insect, 1494
Emesinae, 80
Emesis zela, 356
Empis beevis, 294
Empis humilis, 294
johnsoni, 294
new species of, 292
otiosa, 294
pudica, 294
scoparia, 294
smoddyi, 292
tersa, 294
Enallagma boreale, 264
carunculatum, 264
Enaphalodes rufulus, 1214
Encoptolophus sordidus costalis, 453
Encosternum delegorguei, 684
Encyrtus bicolor, 856
infelix, 856
lecaniorum, 857
Enemies of striped mealybug, 1117
Engelmann spruce beetle, egg production, 448
Enoclerus lecontei, 1239
nigrifrons, 924
nigripes, 924
sphegeus, 1239
Ennomos subsignarius, 561
Enzymatic-spectrophotometric method for uric acid determination, 925
Ephestia cautella, 173
elutella, 662
Ephialtes ontario, 1471
Epicauta segmenta, development in, 27
Epilachna, feeding activity, 450
vigintiocto-punctata, feeding activity, 450
vigintiocto-punctata, relationship with Luffa aegyptiaca, 928
Epilampra, 200
abdomennigrum, 201
abdomennigrum systematics, 617
abortivipennis, 625
azteca, 201
brevis, 625
colombiana, 178
cribrosa, 202
ferruginea, 202
grisea, 201, 618
gundlachi, 201
livida, 625
lurida, 201
maya, 201, 618
maya brachyptera, 626
mexicana, 201
sodalis, 202
verticalis, 202
Epiphyas postvittana, pheromone concentrations needed by, 1206
Episymploce, 196
Eppertia, 192
Eptesicus fuscus, 805
Eremoblatta, 194
Ergosterol, source of sterol to insects, 413
Eribolus longulus, 229
Eriborus sinicus, 799
Erinnyis ello, 355
Eriophyes emarginatae, biology and morphology, 269
prunidemissae, notes on, 269
Eristalis agrorum, 752
Erratum, 531
Erynnia tortricis, 164
Eryophyid mites, dispersal, 1446
Erythropterin, lack of, 246
Escala, 198
insignis, 185
Esterase isozymes in mosquito, 1307
Estigmene acrea, 355, 662, 803
Ethanol in diet of Xyleborus, 592
Euandroblatta, 197
Eublaberus, 200
distanti, 178, 596
n. sp., 201
posticus, 178, 596
Eublattella, 197
Eucanthus, 874
Eucerceris flavocincta, 209
pimarum, 213
rubripes, 213
ruficeps, 213
superba bicolor, 213
Eucorydia, 194
Eucosma monitorana, bionomics, 1284
schistaceana, sterility, 1106
Eudesmia arida, 355
Eudromiella, 196
Euetheola, 877
Euhypnorna, 196
sp., 196
Euloboptera, 194
Eulissosoma, 194
Eumelosomus sansibaricus, 1389
Eumetopiella rufipes, biology and immature stages of, 227
varipes, 228
Eunyctibera, 197
crassicornis, 185
Euparia, 876
Eupelmus cyaniceps, 164
Euphoria, 877
sp., 872
Euphorocera omissa, 251
tachinomoides, 251
Euphyllodromia, 197
Euplectrus platyhypenae, 251
Eupolyphaga, 194
Eupsilia morrisoni, behavior, 544
Eupteromalus viridescens, 752
Euptoieta claudia, 356
European corn borer, acoustic sensitivity of moth, 1364
Eurycotis, 192
abdominalis, 193
bahamensis, 193
biolleyi, 192
blattoides, 193
caraibea, 193
cothurnata, 193
decipiens, 180
floridana, 178
lacernata, 193
manni, 192
mexicana, 193
opaca, 193
Eurygaster, 964
Eurylestes, 194
Eurymetopon rufipes, 211
Eurysternus, 876
Eurytoma pini, 164
Eustegasta, 182
poecila, 202
Eustichus, 693
Eutetranychus orientalis, 650, 660
Eutheganopteryx, 197
Euthlastoblatta, 194
compsa, 199
Euthochtha galeator, immature stages, 469
Euthyrrhapha, 194

Eutrachytes, 64
classification of genus, 62
maya, 64
Euura breweriae, 1077
exiguae, 1075
lasiolepis, 1074
(Gemmura) sp. nr. brachycarpae, 1075
Euzosteria, 193
nobilis, 193
Evarthrus sodalis, 61
Event recorder, monitoring Megachile behavior, 1321
Evolution of holometabolous development, 1087
Exeristes comstockii, 164, 219
Exochus albifrons, 1471
Exoristoides, 342
Eyes of two-spotted spider mite, 461, 466

F

Fannia canicularis, 385
Fat body layer around Ips testes, 1495
Feature photograph, 253, 459, 680, 933, 1220
Fecal: filaments of Platydema oregonense, 444
pellet size, relationship to Lepidoptera molts, 662
Feces, insect, uric acid determination in, 925
Feeding (see Methods)
Feldina (Myrmedoniini), 1190
Feltia subterranea, 803, 1216
Feronia, 910
Ferrisia virgata, 953
enemies of, 1117
Field (see Methods)
Figulus, 870
Flea, crystals in epithelium, 249
Flight mill for Mexican fruit fly, 917
Food preference of Phoetaliotes nebrascensis, 323
Forage crops evaluated for resistance to Melanoplus sanguinipes, 737
Forcipomyia fairfaxensis, feeding, 451
Formica montana, 455
obscuripes, 456
subintegra, 456
subnuda, 1256
ulkei, 456
Formicine ants, chromosome numbers in, 455
Franwalkeria, 198
Fregatiella, new genus, 825
aurifasciata, 825
Frickius, 874
Frigate-bird, *Fregatiella* aurifasciatum from, 823
Fungus, nutrients from, 11

G

Galenara sp., 355
Galerita, 910
janus, 61
Galiblatta, 200
Gelis tenellus, 1471
Galleria mellonella, 355
Gambrus sp., 164
Gamma radiation effect on tobacco budworm tissues, 1340
Gamma-aminobutyric acid role in mosquito-host interactions, 695
Gardinia magnifica, 355
Gazelles, relict parasite of, 415
Generic revision of Nearctic Lasiopteridi, 1348
Genitalia, morphology of insect, 1051
Geocoris punctipes, 765
Geographic variation in Lygaeus kalmii, 1221
Geopinus, 910
Geotrupes, 874
blackburnii excrementi, 871
spp., 61
Geotrupinae, 1391
German cockroach, red-rose linkage, 665
Gislenia, 196
australica, 190
Givira cornelia, 355
mucida, 355
Glaphyrinae, 1393
Glaphyrus, 875
Glaresis, 874, 1393
sp., 1390
Glomerixis, 200
Gloveria arizonensis, 355
Gluphisia septentrionalis, 356
Glypta fumiferanae, 1471
inversa, 1471
Glyptoscelis pubescens in Wisconsin, 1
Glyptotendipes barbipes, 98
Gnaphaloryx, 870
Gnathotrichus, 1008
retusus, internal organ changes, 995
sulcatus, internal organ changes, 995
Gnats, attack activity, 112
Gnatyotrichus retusus and G. sulcatus, mycetangial glands in, 39
Gnophaela latipennis, 356
Goat biting lice, colonization, 826
Goes debilis, 1214
pulcher, 1214
pulverulentus, 1214
tigrinus, 1214
Goniops chrysocoma, 56
Grain mite, population parameters, 1161
Graminella nigrifrons attractancy to dent corn, 773
Granular cutworm, rearing technique for, 1216
Grape berry moth, rearing, 1374
Grapevines, ground pearl on roots, 1032
Graphops floridana, 210
Grass frogs, Forcipomyia fairfaxensis feeding on, 451
Grasshopper, study of wing development, 419
Grassiella, 1372
Green sweat bee, tribal positions, 652
Greenbug, maize dwarf mosaic virus acquisition by, 403
Gromphadorhina, 200
brunneri, 201, 596
chopardi, 201, 596
javanica, 201
portentosa, 201, 596
Gronocarus, 876
Ground beetles, phytophagous, 909
scent fluid, 1498
Ground pearl, biology of, 1032
Growth of mosquitoes, species ratio effects on, 1325
Gryllus sp., 453
Gyalostethus monticolens, 60
Gymnaetron antirrhini, 212
Gymnopleurus, 876
Gymnopyge, 876
Gyna, 200
capucina, 201
sculpturata, 201

H

Haanina, 202
auriculata, 202
Habrobracon juglandis, 791
Habrocytus thyridopterigis, 164
Hadrotettix trifasciatus, 453
Haematobia irritans, 864, 1046
Halictillus, 654
glabriventris, 657
Halictus, 654
hexagoni, 653
intermedii, 653
mutabilis, 659
proximus, 659
rubellus, 659
spinolae, 659
Halisidota spp., 803
Hamilcara atra, 355
Hammacerinae, 79
Hampea sp., boll weevil host, 315, 976
resistance to boll weevil, 542
Hanitschella, 197
Hanstoemidium, 194
Hanströmia, 200
Haplosymploce, 196
Harpactorinae, 78
Harpactorines, 78
Harpactorini, 80
Harpactoroid complex, morphology and phylogeny, 74
Harpalus, 711
affinis, 911
caliginosus, 911
compar, 911
pennsylvanicus, 712
Harrisina brillians, 355
Harrisocoris, 80
Hebardina, 193
pallipalpus, 193
Helgaia, 197
Helictopleurus, 876
Heliocopris, 876, 1394
sp., 1392
Heliothis spp., 803
response to ultrasound, 1122
Heliothis virescens, 803, 1125
virescens, gamma radiation effect on tissues, 1340
zea, 356, 801, 962, 1120, 1211
zea, ultrasound effects on capture, 1248

Hemerocampa vetusta, 355
Hemiblabera, 200
Hemicnetha, new species of subgenus, 157
Hemihyalea labecula, 355
Heminauphoeta, 200
Hemipanesthia, 200
Hemiptera, 47, 74, 148, 240, 246, 469, 474, 477, 673, 1207, 1221, 1246, 1492
Hemiptera-Heteroptera, 485
Hemipteri:ca, 194
Hemithyrsocera, 197
vittata, 199
Hemocytopoietic organs in pine sawfly larvae, 1259
Hemolymph of Periplaneta americana, sugar and uric acid in, 71
Heniartes, 84
Hensaussurea, 194
Henschoutedenia, 200
flexivitta, 201
Herse convolvuli, 363
Hesperotettix v. viridis, 453
Hessian fly, chromosome elimination in, 1095
Race E of, 677
Heterocampa averna, 356
Heterolaccus grandis, parasite of boll weevil, 235
hunteri, 235
Heteromenopon, new species of, 563
(H.) *anodorhynchi*, 564
(Keamenopon) *kalamundae*, 566
(H.) *passerini*, 563
(H.) pionopsittae, 563
(H.) sincipitalis, 563
Heteroptera, 74, 681
Hickory shuckworm, attractant to pecan shucks, 240
rearing on artificial diet, 1401
Hieroblatta, 200
High temperature responses of Apanteles militaris and of Pseudaletia unipuncta, 1303
Hilara, new species of, 292
dixi, 294
juno, 295
mutabilis, 295
nugax, 295
rufopuncta, 295
trivittata, 295
Hindublatta auriculata, 202
Hippelates collusor, 221
migrations of larvae, 136
Hippelates spp., 116, 864
Hippodamia convergens, 767
new species of Tetrapolipus from, 1465
Histiogaster arborsignis, 107
rotundus, 107
Histology of: grasshopper wing development, 419
scolytids, 995
History of pine needle scale population, 930
Hoffmanocoris, 80
Holocompsa, 194
Hololepta quadridentata, 61
Holoptilinae, 79
Holotrichia, 876
consanguinea, 873, 1390
Homalosilpha, 192
gaudens, 192
ustulata, 192
Homalotylus quaylei, 955
Homoeosoma electellum, abundance and parasitism, 1461
Homoneura americana, 54
Homoptera, 47, 247, 279, 348, 532, 558, 669, 718, 770, 773, 855, 930, 935, 952, 1032, 1117, 1128, 1176, 1185, 1398, 1490
Honey bee, pollen through alimentary canal, 43
Hoplia, 876, 1394
Hoplophoropyga, 193
Hormetica, 200
Hormopeza, 295
bullata, 296
copulifera, 297
fumicola, 297
new species of, and synopsis of, 292
senator, 298
virgator, 298
Host: age in Trichogramma minutum, 1476
and breeding sites of Pissodes bark weevils, 146
preferences of Anopheles culicifacies, 1270
Hostilia, 200
House fly, chemical effects on oviposition, 663
hydrocarbon metabolism in, 891
mating of female, 828
metabolism of cholesterol-4-^{14}C in, 1021
suction-electrode study of heart, 375
Humidity preference of alfalfa weevil, 904
Hyalomma (Hyalommina) brevipunctata, 415
(Hyalommina) hussaini, 415
(Hyalommina) kumari, 415
(Hyalommina) *punt*, relict parasite, 415
(Hyalommina) rhipicephaloides, 415
Hyalomyodes triangulifer parasitizing cereal leaf beetle, 923
Hyalophora cecropia, 1422
morphology of alimentary canal, 1438
Hybalus, 876
Hybolasioptera, 1352
elymi, 1352
Hybomitra, 1430
aurilimbus, 54, 1430
difficilis, 56
epistates, 54, 1430
h. hinei, 54, 1430
illota, 54, 1430
lasiophthalma, 54, 1045, 1203, 1430
lasiophthalma, starvation effect on chemoreceptors, 1217
trispila sodalis, 54, 1430
typhus, 54, 1430
Hybosorinae, 1393
Hybosorus, 875
Hydrocarbons from Novomessor cockerelli, 723
Hylastes porculus, 484
Hylemia spp., 778
Hylemya brassicae, 854
Hylobius pales, field observations on, 722
rhizophagus, life history and damage of, 838
rhizophagus, wounding pine root, 1499
Hylurgopinus rufipes, feeding responses by, 730
Hylurgops pinifex, 484
Hymenoptera, 11, 125, 209, 214, 235, 244, 299, 305, 342, 380, 382, 455, 530, 532, 674, 723, 790, 812, 963, 1303, 1316, 1321, 1379, 1382, 1407, 1414, 1476
parasitic, host size and density influence, 220
Hypaurotis crysalus, 356
Hypera brunneipennis, 1268
postica, 812, 924, 1241, 1268
postica, biology, 1485
postica, humidity preference, 904
postica, mating competition in, 956
punctata, 924
Hypercompsa, 194
fieberi, 194
Hyperodes delumbis, 212
sp., 210
Hyperparasitism of Aphelinus semiflavus, 1207
Hypoaspis (Laelaspis) moseri, 342
Hypochlora alba, 453
Hypoderma bovis, 843
lineatum, 843
Hyporhicnoda, 200
humilior, 201
litomorpha, 178
reflexa, 201
Hyposphaeria, 200
Hyssopus thymnus, 164

I

Ichneumon, n. sp., 752
Identification of: plusiine caterpillars, 507
Tribolium pupae, 1232
Identity of Sitophilus oryzae, 169
Idiostolidae, morphology, taxonomy, distribution, 485
Idiostolus, 497
insularis, 497
Ignabolivaria, 194
Imblattella, 194
Incandescent light, attraction of Nantucket pine tip moth to, 443
Incisitermes snyderi, 541
Incoblatta, 194
Influence of parasites on Choristoneura populations, 1469
Inorganic ions, aquatic beetle exposed to, 921
Internal: anatomy of two-spotted spider mite, 247
damage in aquatic beetle, 921
organs of scolytids, changes in, 995
Introduced pine sawfly, hemocytopoietic organs in larvae, 1259
Ionizing radiation effects on termites, 120
Ioscytus politus, 1208
Ips avulsus, 925
calligraphis, 103
chagnoni, 484

confusus, fat body layer around testes, 1495
grandicollis, 484, 924
pini, biology, 480
pini, ecology, 483
spp., biology of beetles attacking, 924
Iridomyrmex humilis, 505
pruinosus, 541
Ischnoptera, 196
bimaculata, 199
castanea, 186
cruralis, 199
deropeltiformis, 186
galibi, 186
marginata, 186
mura, 186
neoclavator, 196
panamae, 186
rhodei, 199
rufa, 186
spp., 181
Ischnura cervula, 264
perparva, 264
Isocryptus spp., 778
Isolasioptera cypatoriensis, 1349
Isoldaia, 194
Isoptera, 335, 536
Isotima sp., 800
Isyndus, 77
Itoplectis conquisitor, 164, 288, 1471
nr. evetriae, 164
naranyae, 799
Ixodoidea, 415, 885
Iziphya punctata, 530
Mesidia nigra parasite of, 532

J

Jacobsonina, 194
Jagrhenia, 200
Jamacerus, new genus, 348
farri, 353
Janeirona, 693
insignis, 693
Johnrehnia, 194
Jotepperia, 198
Juniper webworm, bionomics, 287
Juvenile hormone, related compounds, 667, 668

K

Kahlamba, 691
typica, 691
Killing jar, cherry-laurel foliage in, 242
Kinetic orientation behavior of alfalfa weevil, 1241

L

Labidura riparia, 764
Labidus coecus, 1367
Ladella radicis, 752
Laelius sp. (trogodermatis?), 764
Lamotellus, 79
Lamprima, 870
Lamproblatta, 192
romani, 192
zamorensis, 179
Laniifera cyclades, 360
Lanta, 198
Lanxoblatta, 200
emarginata, 201
Laphria gilva, predator of Dendroctonus ponderosae, 1237
Large milkweed bug, mutant strain, 246
Larval development in Culicoides furens, 702
Lasconotus sp., 483
Laser radiation, effect on feeding behavior of western corn rootworm larvae, 808
Lasioderma serricorne, 173
Lasioglossum, 654
(Dialictus) aquilae, 655
(D.) sp., 656
Lasioptera, 1349
allioides, 1359
clavula, 1351
colorati, 1358
echinochloa, 1356
flavoventris, 1351
hamata, 1351
muhlenbergiae, 1357
Nearctic species, 1351
picta, 1349
solani, 1351
solidaginis, 1351
vitinea, 1353
Lasiopteridi, 1349
reference list to Nearctic species, 1361
Lasiopterini, 1349
Lasius neoniger, 483
pallitarsis, 456
(L.) sp., 483
umbratus, 456
Laspeyresia caryana, 240
rearing on artificial diet, 1401
Laspeyresia pomonella, 1211
toreuta, Phanerotoma parasite of, 214
Latiblattella, 198
sp., 189
Latinidia, 194
sp. nr. dohrniana, 194
Latrodectus mactans, 767
Laxta, 200
Lema trilineata, 319
granicollis, 201
sp., 201
Lebia, 910
Lectotype: designations for Saldidae, 1207
of Bruchus julianus, 676
Leiobunum flavum, 60
Lema collaris, 1319
trilineata, 211, 1319
Lepidoptera, 21, 109, 250, 396, 443, 457, 507, 525, 544, 610, 670, 674, 749, 801, 931, 941, 958, 1106, 1113, 1120, 1122, 1206, 1212, 1216, 1248, 1252, 1284, 1340, 1364, 1374, 1401, 1403, 1422, 1438, 1461, 1469, 1482
morphology of dorsal vessel, 353
relationship of fecal pellet size, 662
Lepidopterous larval mining of oak, 1210
Lepisma saccharina, 1369
Leptanusia pseudoccoci, 1118
Leptaulax, 871
Leptinopterus, 870, 1391
Leptinotarsa decemlineata, 928
Leptoconops kerteszi, 112
Leptocoris trivittatus, 965
Leptodema, 80
Leptoglossus clypeatus, scent fluid, 673
Leptomastidea abnormis, 1118
Leptomastis?, 1118
Leptothorax muscorum, 1257
Lespesia aletiae, 251
archippivora, 251
Lethal effects of gamma radiation on bagworm eggs and larvae, 1113
Lethrus, 874
Leucophaea, 200
maderae, 186, 596
spp., 182
Leucopus sp., 1118
Leucostoma simplex, parasite of Nabis alternatus, 240
Leucotabanus annulatus, 867
Leuropeltis, 198
gurneyi, 199
Libytheana bachmanii, 356
Lichnanthe, 875
rathvoni, 871
Lichnia, 875, 1393
Life cycle of granulate cutworm, temperature effects on, 1216
Life history: and damage of pine root tip weevil, 838
and feeding of Melichares, 747
features of Rhyacophila, 894
Life history of: Agistemus exsertus, 649
Arzama densa, 749
Cyrtoxipha, 948
Metaseiulus occidentalis, 978
Opatroides punctulatus, 236
short-tailed cricket, 337
Sialis, 549
Typhlodromus mcgregori, 1261
Upis ceramboides, 922
Life table of Metaseiulus occidentalis, 978
Light-brown apple moth, pheromone concentrations needed by, 1206
Light effect on: dispersal of Aphidius pisivorus, 1185
dispersal of pea aphid, 1185
takeoff of Rhopalosiphum maidis, 1176
takeoff of Schizaphis graminum, 1176
Ligidium (?) blueridgensis, 60
Ligyrodes, 877
Limenitis bredowii, 356
Limnobaris confusa, 210
Liparis dispar, 355
Liparochrous, 875
Lipids of olive fruit fly, 1290
Lipolysis of triglycerides during storage of corn rootworm eggs, 675
Liquid nitrogen fixation, 246
Litaneutria minor, 767

Lithium carbonate extraction in uric acid determination, 925
Litoblatta, 194
Litopeltis, 200
bispinosa, 201
Livestock insect flight, 1046
Lixus concavus, 211
mucidus, 211
Lobolampra, 194
Loboptera, 194
Lobopterella dimidiatipes, 189
Lobopteromorpha, 198
Locust borer, laboratory culture, 647
Longevity and fertility of Nasonia vitripennis, 305
Longitarsus melanurus, 853
Lophoblatta, 195
arlei, 199
fissa, 190, 596
Lophocephala, 80
guerini, 85
Lophometopum, 194
Lopodytes, 80
sp., 82
Loxopeza, 910
Lucanidae, 870, 1391
Lucanus, 870
mazama, 871
Lucilia cuprina, sexual stimulation of males, 1419
Luffa aegyptiaca, Epilachna vigintioctopunctata feeding on, 450
relationship with Epilachna, 928
Lupparia, 194
Lygaeus kalmii, geographic variation, 1221
kalmii anagustomarginatus, 1221
reclivatus, 1221
sp., 965
trux, 1221
turcicus, 1221
Lygris diversilineata, 355
Lygus fasciatus, 853
hesperus, feeding and nutrition, 148
sp., 965
Lyorhyssus hyalinus, 965
Lypha setifacies, 1471

M

Machilis sp., 60
Macraspis, 877
Macrocentrus ancylivorus, 1463
Macrocera, 198
Macrodactylus, 876
Macroneura vesicularis, 164
Macronota, 877
Macropanesthia, 200
Macrophyllodromia, 194
Macrosiphum albifrons, 48
Madremyia saundersii, 1471
Maintenance of Blaberus giganteus, 1311
Maize dwarf mosaic virus, acquisition by greenbug, 403
Malacosoma fragile, 355
Maladera, 876
Male tergal glands in Blattaria, 176
Malgassus, 691
exiguus, 691
hypoleucus, 692
Mallophaga, 393, 563, 815, 823, 826
Mallotoblatta, 198
Malpighian tubules of cockroach, activity in, 725
quinquemaculata, 125
sexta, 125, 141, 805, 1252
sexta, Apanteles congregatus parasite of, 342
Maoriblatta, 192
novaeseelandiae, 193
Maretina, 194
hivaoa, 195
marquesana, 195
uahuka, 193
Margarodes vitium, biology of, 1032
Margattea, 194
ceylanica, 187
punctulata, 199
Margatteoidea, 194
Margattina, 198
Marking California red scale, 558
Mass collection of wasp venoms, 277
Matabelina, 194
Mating competition in alfalfa weevil, 956
Mating of: Apanteles congregatus, 342
bollworm moths, 1120
female house fly, 828
Mayetiola destructor, 1096
Race E of, 677
Mediastinia, 198
Megachile rotundata, 1494
nesting behavior, 1321
Megacyllene robiniae, laboratory culture, 647
Megaloblatta, 194
blaberoides, 195
regina, 195
Megalopta, 654
Megaloptera, 549
Megalopyge bissesa, 355
Megaselia aletiae, boll weevil parasite, 674
Megathopa, 876
Megazosteria, 192
Megomareta, 194
Megoucoparsus *dooarsis*, 952
Megymenum spp., 681
Melanization in Aedes aegypti eggs, 7
Melanophthalma distinguenda, 853
Melanoplus alpinus, 453
bivittatus, 453
b. borealis, 453
bowditchi canus, 453
bruneri, 453
confusus, 453
cuneatus, 453
dawsoni, 453
differentialis, 453
f. femurrubrum, 453
f. foedus, 453
gladstoni, 453
infantilis, 453
lakinus, study of wing development, 419
o. occidentalis, 453
packardii, 453
sanguinipes, 453
sanguinipes, forage crops resistant to, 737
Melanozosteria, 192
Melatonin effect on egg production of boll weevil, 252
Melestora spp., 181
Melichares tarsalis, biology, 747
Melipotes indomita, 356
Melitara parabates, 355
Melittia gloriosa, 355
Melolontha, 876
Melolonthinae, 1394
Menecles, 693
Menopon aurifasciatum, new genus erected for, 823
eurum, 820
intermissum, 825
kuwani, 819
singularis, 822
Mermiria maculipennis macclungi, 453
Mesidia, new species of, 530
nigra, 530
nigra, biology, 532
Mesoblaberus, 200
Mesochorus sp., 1471
Mesomphix vulgatus, 60
Mesostigmata, 62
Metablatta, 192
meridionalis, 192
Metabolism, hydrocarbon, in insects, 891
of cholesterol-4-^{14}C, 1021
Metachaetodus, 875
Metaseilulus occidentalis, life history and life table of, 978
Metator nevadensis, 453
pardalinus, 453
Meteorus sp., 1471
tetralophae, 1471
Methana, 193
caneae, 193
convexa, 180
curvigera, 193
marginalis, 193
parva, 193
Methods: abdominal spiracles of Scarabaeoidea, 869
acquisition of maize dwarf mosaic virus by Schizaphis graminum, 403
Methods, activity of: cambium miners, 932
gnats, 113
Methods: alimentary canal of Odoiporus, morphology, 664
alluvial area habitats of tabanids, 1203
anomalous dimorphism in Aedes vexans, 914
antibiosis studies of Hampea sp., 976
aphid parasite, bioclimatic studies of, 1026
applicability of population growth models to laboratory population, 437
assessing age of mosquitoes, 605
attine ant, cellulose-utilizing capability of, 1386
Methods, behavior: climbing, of spotted cutworm, 1404
feeding of Aphidecta obliterata, 1004
feeding of western corn rootworm, 808
mating, of bollworm, 1120
mating, of Perlesta placida, 1433
of: alfalfa weevil, 1242

Anthrenus, 768
boll weevils, early, 602
crickets, 752
Cyrtoxipha, 945
Eupsilia morrisoni, 544
Megachile rotundata, 1321
strawberry aphid, 1490
Trogoderma, 764
western corn rootworm moths in feeding, 808
Method, probing of pea aphid, 987
Methods: bioassay, etc., of Tenebrio molitor, 847
bionomics of pine chrysomelid, 1
Methods, change in: bean yellow mosaic virus transmissibility, 47
internal organs of scolytids, 995
Methods, characters: of Ips pini, biological, 480
to identify caterpillars, 507
Methods, chemical analysis of: Calosoma scent fluid, 1498
Dicaelus scent fluid, 1493
Pasimachus scent fluid, 1492
Methods: chemical basis for: ant-fungus symbiosis, 386
symbiotic association of fungus-cultured ant, 11
Methods: chemical content of arthropods, 57
chemosterilization of boll weevil, 511
chorionic melanization Aedes aegypti eggs, 7
citrus leaves, repellency of aphids to, 399
comparative response of California red scale strains, 279
comparison of abilities of Metaseiulus and Phytoseiulus to regulate Tetranychus urticae, 978
corn hybrids, attractiveness to vectors, 770, 773
correlation of cellular activity in Weismann's ring, 446
crown levels of red pine, parasites in, 163
culture methods for Rhynchosciara, 95
density and species ratio effects on mosquitoes, 1326
development and hatching of prairie grain wireworm eggs, 567
development of: crucifer fauna, 852
two-spotted spider mite, 248
yellow-fever mosquito, amino acids in, 742
Methods: developmental and genetic variation in mosquito, 1307
devices for collecting Tabanidae, 51
Methods, diet: ethanol in, 593
for apple maggot, 19
holidic, of strawberry aphids, 1490
meridic, of Lygus hesperus, 149
rearing hickory shuckworm on artificial, 1403
Methods: dietary effects of mites on Agistemus reproduction, 650
Methods, distribution of: Culicoides, 1153
Heterolaccus grandis, 235
Idiostolidae, 485
Methods: diurnal rhythm of pupation, 1080
dorsal vessel of Lepidoptera, morphology, 354
ecology of Aceria tulipae, 1447
effectiveness of aliphatic ketones and alarm behavior, 380
effects of Pentac on Tetranychus, 640
emergence and reproduction in Hymenoptera, 221
environmental role in termites, 1274
enzymes of mosquitoes, 328
evaluation by uric acid analysis of alfalfa seed chalcid infestation, 1379
evolution of male tergal glands in Blattaria, 177
evolutionary trends in Blattaria, 595
external insect genitalia, morphology, 1053
eye of butterfly, color receptors in, 1497
eye size of elm spanworm, 561
Methods: feeding of Epilachna vigintiocto-punctata, 450
Forcipomyia fairfaxensis, 451
Methods, feeding behavior of: Aphidecta obliterata, 1004
western corn rootworm, 808
Methods: feeding habits of: Opatroides punctulatus, 237
Rhyacophila, 895
feeding preferences of phytophagous insects, 319
feeding responses by: eastern subterranean termites, 335
hickory shuckworm larvae, 240
Hylurgopinus rufipes, 730
Methods: feeding swarm of Cheiroplatys clunalis, 927
field observations on pales weevil, 722
field studies: marking California red scale for, 558
on biology of alfalfa weevil, 1485
Methods: flight activity of stable fly, 1046
fluctuations in sugar and uric acid in Periplaneta, 71
foraging galleries of termites, 537
fruit-sucking moth, nervous system, 959
GABA possible existence in mosquitoes, 696
genetic evidence of elimination of chromosomes, 1098
geographical range and population levels of Eucosma monitorana, 1284
gonads, excision from Diatraea, 457
growth analysis of Blaberus discoidalis, 734
Methods, habits of: short-tailed cricket, 337
Sialis, 549
Methods: histological study of Diprion similis larvae, 1259
holometabolous development, evolution, 1087
host species effect on Naxonia vitripennis, 306
Methods, hosts of: boll weevil, amino acids in, 256
boll weevil, preference among, 261
tabanids, 1044
Methods: hydrocarbon metabolism in insects, 891
Methods, identification: and sex determination of Aphidecta obliterata, 718
of hydrocarbons, 724
Methods, immature Cordilura spp., 776
Coreidae, 470, 474, 477
Orthacheta hirtipes, 785
stages of Eumetopiella rufipes, 227
Methods: inanition to death of American cockroach, 1313
infestations of Platypus flavicornis in southern pines, 1008
intake of phosphate by cattle grubs, 844
integumentary glands of Aleocharinae, 1189
internal damage in aquatic beetle, 921
interrelationships between microbes and ambrosia beetles, 413
intrastand growth types, dispersion of white-pine weevils in, 835
irradiation effects on Diptera sperm, 614
Methods: laboratory: mating of Apanteles congregatus, 342
preference studies of boll weevil, 316
Methods: larval Chironomidae in stabilization lagoons, 97
lethal mutations or sperm inactivation in Bracon, 791
lights, attraction of Nantucket pine tip moth to, 443
longevity and sexual activity of southern green stink bug, 1246
magnitude of parasitism in natural populations, 251
metabolism of cholesterol-4-^{14}C, 1022
metamorphosis of Hyalophora cecropia, 1438
microenvironmental conditions affecting alfalfa weevil, 904
mite eyes, morphology, 461
mites, biology of, 103
natural bimodal emergence of cecropia moths, 1422
Methods: nervous system of: Nauphoeta cinerea, drug effects on, 983
Prodenia litura, 525
Methods: nest structure of Pogonomyrmex occidentalis, 1166
new species of Mesidia, 530
oak, population increase of Pseudopityophthorus in, 449
Methods: observations on: biology of Mesidia nigra, 532
Upis life history, 922
Methods, occurrence: and physiology of Culex tarsalis, 14
of fat body around testes of Ips, 1495
Methods: odors of aggregation sites for sexual stimulation, 1420
ovaries, apholate effects on, 1092
Methods, oviposition: and host relationships of Cheiloneurus noxius, 300
of: house fly, 828
house fly, chemical effects on, 663
Saperda and Oberea, 309
ticks, 628
Methods, parasite: influence on Choristoneura, 1470
of potato tuberworm, 1407
Methods, parasitism: by Trichogramma minutum, 1476, 1482
of Musca and Stomoxys pupae, 129
Methods: pharyngeal bot occurrence in deer, 1209

pheromone production in Tribolium lineatum, 454
physiological responses of insects to nicotine, 141
population parameters of Acarus siro, 1162
potential of Typhlodromus mcgregori for phytophagous mite control, 1262
Methods, predator of: Dendroctonus ponderosae, 1238
mites, 660
striped mealybug, 954
Methods: preferences in mating in alfalfa weevil, 956
production of sound in weevils, 134
race of Hessian fly, 677
Methods, radiation: effect on tobacco budworm tissues, 1340
feeding behavior effect on western corn rootworm, 808
gamma, effects on bagworm, 1114
gamma, sterility induced by, 1106
of termites, 121
sensitivity of arthropods, 711
Methods: radiosensitivity of arthropods, 711
Methods, rearing: Blaberus, 1311
granulate cutworm, 1216
grape berry moth, 1374
hickory shuckworm, 1401
olive fruit flies, 1290
spider mites, 899
technique for larval development studies, 703
triungulin larvae, 30, 33
Methods: reciprocal crosses of tobacco hornworm, diapause, 1252
refined defensive mechanisms of Chrysomela scripta, 503
relationship of Eriophyes pruindemissae to E. emarginatae, 270
Methods, reproduction: in stored-grain insects, 1012
isolation of Muscidifurax raptor complex, 382
of Aonidiella aurantii, 935
of strawberry aphid, 1490
Methods: reproductive systems of Cardiochiles nigriceps, 1414
Methods, response of: bollworm moths to ultrasound, 801
Heliothis spp. to ultrasound, 1123
parasite and host to high temperature, 1303
spotted cutworms to wavelengths, 941
stored-product insects to Trogoderma, 172
Methods: role of photoperiod in diapause of Apanteles congregatus, 126
roots of grapevines, ground pearl in, 1032
salivation activity of Acyrthosiphon pisum, 1398
Methods, seasonal: abundance of sunflower moth, 1462
seasonal changes in: Drosophila, 1102
Gnathotrichus retusus, 39
seasonal history of pine needle scale, 930
Methods: sense organs of *Culex*, 1457
sensitivity to sound of European corn borer, 1364
size variation in Muscidifurax raptor complex, 382
source of triungulin larvae 29, 33
spiracles of Scarabaeoidea, 1388
starvation-induced activity in cockroach malpighian tubules, 726
Methods, status of: brown soft scale in citrus groves, 855
Lygaeus kalmii, 1222
Methods: sterol and water-soluble vitamin requirements for Argyrotaenia, 612
storage of corn rootworm eggs, 675
Methods, study of: house fly heart, 376
juniper webworm life history, 287
Mexican fruit fly, 917
Phanerotoma, 215
Methods: suppression of sugarcane borer by sterility, 22
systematics of Epilampra, 618
Methods, temperature: and light effects on aphids, 1177, 1186
apparatus to record, 1494
temperature effect: on Anaphes flavipes, 1317
life cycle of granulate cutworm, 1216
temperature of parasite and host, responses to, 1303
Methods: time for pollen consumption by honey bees, 44
toxicity of neurotropic drugs on cockroach, 371
vectors of Anaplasmosis, 864
vitro colonization of goat biting lice, 826
wing development in grasshopper, 420
wounding of pine roots, 1499
Metopoloba pruinosa, 213
Mexican fruit fly, flight mill for, 917
Miccotrogus picirostris, 212
Micodiplosis alternata, 1351
Micrauchenus, 84
Microcarenus, 79
Microbes, interrelationships and ambrosia beetles, 413
Microphotus fragilis, 680
Microsporidia, 452
Microterys flavus, 303, 856
Microtrombidium sp., 115
Midwinter breeding flight of Diamesa arctica, 1204
Migration of: hemocytes in Caloglyphus berlesei, 155
Hippelates collusor larvae, 136
Milchiella lacteipennis, 54
Milkweed bugs, geographic variation, 1221
Minablatta, 200
Mimosestes amicus, 213
protractus, 213
Minyomerus languidus, 213
Miostylopyga, 192
Miothyrsocera, 195
Mirid, seven-legged, 1492
Misa cosyra, 355
Misumenops celer, 767
Mites of Quintana Roo, 62
Molestella, 195
Moluchia, 195
strigata, 177
Monastria, 200
Mononychoblatta, 194
Monteithocoris, 499
hirsutus, 486
Monterey pine, Scythropus damage to, 117
Montina, 77
Mopserina, 198
Morphna, 200
imperatoria, 201
Morphnodes, 200
curta, 201
goliath, 201
Morphology, and mating behavior of Perlesta placida, 1433
Morphology of: alimentary canal of Odoiporus, 664
Bakericheyla chanayi, 859
Cardiochiles nigriceps, 1414
Cyrtoxipha, 948
Eriophyes emarginatae, 269
harpactoroid complex, 74
Hyalophora cecropia alimentary canal, 1438
Idiostolidae, 483
insect genitalia, 1051
lepidopteran dorsal vessel, 353
pea aphid, 1016
Pentatomoidea, 681
Perilimnia and Shannonia, 581
Prodenia litura nervous system, 525
Trichatelura manni, 1367
two-spotted spider mite eyes, 461
Morphometric differences in alfalfa weevils, 1268
Mortality of mosquitoes, species ratio effects on, 1325
Mosquito(es), assessing age, 605
biochemical effects of apholate on, 1091
competition in, 1325
enzymes, 327
host interactions, role of gamma-aminobutyric in, 695
Mountain beaver, moth from nests, 396
Mulsantina hudsonica, 718
spp., 718
Musca autumnalis, activity in Weismann's ring and, 446
Musca domestica, 221, 376, 385, 450, 614, 663, 828, 891, 1203
metabolism of cholesterol-4-^{14}C in, 1021
pupae parasitism, 128
curviforceps, 131
Musca domestica calleva, 131
Musca sorbens, sterile culture of, 450
Muscidifurax raptor, 131, 221
reproductive isolation of complex, 382
Mycetangial glands in Gnathotrichus retusus and G. sulcatus, 39
Mycotrupes, 874
Myotis lucifugus, 805
Myrmecina americana, 61
Myrmecoblatta, 194
Myzus persicae, 47, 399, 403, 854

N

Nabis alternatus, parasitized by Leucostoma simplex, 240
Nahublattella, 196

Namablatta, 198
Nanicocoris, 84
Nannotegea, 82
Nantucket pine tip moth, attraction to light, 443
Nasonia vitripennis, 437
longevity and fertility, 305
Nasutitermes costalis, 121
nigriceps, 121
Natalicola delegorguei, 683
Natalicolinae of uncertain position, 681
Nauclides, 200
Nauphoeta, 200
cinerea, 176, 596
cinerea, drug effect on activity of nervous system, 983
neurotropic drugs on, 370
Nebria, 910
Nectelia sp., 251
Neivamyrmex, 1367
pilosus, 1367
Neliopophygus, 195
Neltumius arizonensis, 213
Nemobius maculatus, 60
Neoblattella, 195
Neocheyletiella, 861
Neolasioptera, 1353
Nearctic species, 1353
allioniae, 1353
apocyni, 1353
argentisquama, 1353
cassiae, 1353
convolvuli, 1353
cornicola, 1351
desmodii, 1353
diplaci, 1353
eupatoriflorae, 1353
farinosa, 1353
fraxinifolia, 1353
galeopsidis, 1353
impatientifolia, 1353
linderae, 1353
lupini, 1353
lycopi, 1353
mitchellae, 1353
murtfeldtiana, 1353
neofusca, 1353
nodulosa, 1353
palustris, 1353
quercina, 1353
riparia, 1353
rudbeckiae, 1353
spinulae, 1353
tertia, 1353
trimera, 1353
verbenae, 1353
vernoniae, 1353
vernoniflorae, 1353
virginica, 1353
weldi, 1353
Neoleptoblatta, 197
Neoloboptera, 195
Neophysoderes, 92
Neostylopyga, 192
rhombifolia, 178
Nephrotoma sp., 55
Nephus nr. scitus, 1118
regularis, predator of striped mealybug, 953
Nervous system of Othreis materna, 958
Nesomylacris, 195
relica, 196
Nesomylacris sp., 195
Nest architecture of green sweat bees, 652
Neurotropic drugs on: activity of Nauphoeta nervous system, 983
cockroach, 370
Nezara viridula, sexual activity and longevity, 1246
Nicotine responses in insects, 141
Nigidius, 870
Nimbablatta, 198
Nomamyrmex, 1367
Nomia melanderi, 1321
Norape tener, 355
Northern pine weevil, sound in, 134
Nosema locustae, extension of host range, 452
Nothoblatta wasmanni, 199
Nothofagus, 499
Notice to non-member subscribers, May 1969, iii
Notolomus basalis, 210
Notopomus, 694
Novomessor cockerelli, 723, 764
Nutrients from fungus, 11
Nutrition: and feeding of Lygus hesperus, 148
of Xyleborus ferrugineus, 592
Nyctibora, 195
azteca, 199
humeralis, 195
tetrasticus, 193
Nycticeius humeralis, 805
Nymph of Amphiagrion abbreviatum, 264
Nymphodromia, 195
Nysius caenosulus, 964
thymi, 965

O

Oak, lepidopterous larval mining of, 1210
Oakworm, sex determination of pupae, 931
Oats, stored-grain insects in, 1011
Oberea delongi, 1214
schaumii, oviposition, 308
Obituary: Robert Leslie Usinger, 1218
Observing cambium miner activity, 932
Ochodaeus, 875, 1393
sp., 872, 1390
Odocoileus virginianus, pharyngeal bot occurrence in, 1208
Odoiporus longicollis, morphology of alimentary canal, 664
Odonata, 264
Oedaleonotus enigma, 453
Oeneis uhleri, 356
Oiketicus townsendi, 355
Oklahoma white-tailed deer and pharyngeal bot, 1208
Olene sp., 355
Olfactometer for bioassay of sex pheromone, 935
Olisthopus, 910
Olive fruit fly, lipids of, 1290
Olla abdominalis, 858
Omophron, 910
Omorgus, 874, 1393
sp., 871
Oncerinae, 1391
Oncerus, 874, 1397
Oncopeltus, 711
fasciatus, 246, 570, 712
fasciatus, mutant strain, 246
Oniticellus, 876
californicus, 1390
Onitis, 876
Onthophagus, 876
Ontogeny of blister beetles, 27
Onychostylus, 195
notulatus, 596
Oodes, 910
Opatroides punctulatus, life history, 236
Opeia obscura, 453
Ophonus, 910
Ophryastes sp., 210
sulcirostris, 213
sulcirostris porosus complex, 213
Opisthoplatia, 200
Optimum rainfall and spring emergence of carrot beetle, 1336
Optocerus, new genus, 348
Optocerus auratus, 349
dicranus, 349
unicinatus, 349
Orgilus lepidus, biology, 1407
Orientation of alfalfa weevil to host, 1241
Orius insidiosus, 853
Ornatiblatta, 198
maori, 187
Ornithocheyletia, 861
Ornithodorinae, systematics, 1035
Ornithodoros, systematics, 1035
echimys, 1042
Ornithodoros *eptesicus*, 1037
(Subparmatus) *marinkellei*, 1040
mimon, 1039
(Subparmatus) *mormoops*, 1041
peruvianus, 1038
pteropteryx, 1039
setosus, 1036
Orocharis, systematics of crickets of genus, 752
californicus, 753
diplastes, 754
gryllodes, 753
luteolirus, 753
meridionalis, 753
nigrifrons, 755
saltator, 753
spp., 754
terebrans, 753
tricornis, 754
Orphininae, 1393
Orphnus, 876
Orthacheta hirtipes, 778
predator of Cordilura spp., 785
Orthoptera, 71, 323, 337, 419, 734, 736, 752, 881, 945, 983, 1311, 1313
Nosema locustae host range extension in, 452
Orthotomicus caelatus, 484
Othreis materna, nervous system, 958
Oruscatus, 876
Oryctes, 877
Oryzaephilus surinamensis, 173
Oscinella carbonaria, 229
conicola, 164

Osmoderma, 877, 1394
Ostrinia nubilalis, 803
  acoustic sensitivity of moth, 1364
  ultrasound effects on capture, 1248
Otocryptops sexspinosus, 60
Oulema gallaeciana, 1319
  melanopus, 1317
  melanopus, Hyalomyodes parasitizing, 923
Ovarian follicles of mosquitoes, changes, 605
Oviposition (see Methods)
Oxycetonia, 877
Oxygen consumption of: American cockroach, 1313
  western horse lubber grasshopper, 927
Oxyhaloa, 200
Oxysternon, 876
Oxystoglossa, 658
Ozirhincus, 1351
  filicis, 1352
  karnerensis, 1352
  millefolii, 1351

P

Pachnepteryx, 195
  pruinosa, 195
  ventralis, 195
Pachybrachys dilatatus, 212
Pachylomerides audouini, 60
Pachyscelis, 237
Pachysphinx modesta, 355
Page charges, 239, 661
Pales weevil, field observations on, 722
Panchlora, 200
  irrorata, 201
  nivea, 201, 596
Panesthia, 201
  australis, 201
  sp., 201
Panonychus citri, 661
  ulmi, 1262
Pantochlora, 691
  vivida, 689
Pantochlorini, 689
Papilio gothica, 356
  multicaudata, 356
  polyxenes, 356
Papuablatta, 198
Paracotalpa, 877, 1394
  granicollis, 1390
Paragapostemon mutabilis, 659
Parallipsidion, 195
Paralobesia viteana, rearing, 1374
Paramethana, 193
Paramphibolus, 79
Paranauphoeta, 201
  lyrata, 201
Paranthrene dollii, 1214
  palmii, 1214
  tricincta, 1214
Parapanthous, 87
Parasa chloris, 355
Parascalida, 198
  aliena, 199
Parasites of: Rhyacionia buoliana, 163
  yellow-striped armyworm, 250
Parasites to control rice stem borers, 797
Parasitism: and brachypterous males in sugarcane leafhopper, 669
  of sunflower moth, 1461
Parastasia, 877
Parasymploce, 196
Paratemnopteryx, 195
Paratrichius, 877
Parcoblatta, 195
  pensylvanica, 191
  sp., 61
  ubleriana, 185
  virginica, 178
Parellipsidion conjunctum, 183
Paria sp., 212
Parnassius smintheus, 356
Parrots, Psittacobrosus from, 393
Parvitermes discolor, 121
Pasimachus, 910
  californicus and P. duplicatus, scent fluid, 1492
  elongatus, 61
Passalidae, 1391
Passalus, 871
Patrobus, 910
Paxillus, 871
Pea aphid, cornicles, 1015
  parasite, hyperparasitism, 1207
  probing behavior, 987
  temperature and light effects on dispersal, 1185
Pecan shucks, hickory shuckworm attracted to, 240
Pectinophora gossypiella, 355
Pedetontus sp., 1074
Pelidnota, 877
Pelmatosilpha, 193
  coriacea, 202
  inaudita, 202
  occidentalis, 202
  purpurascens, 202
  sp., 193
Peltotrupes, 874
  profundus, 1389
Pemphiginae of conifer roots, 1128
Pemphigus populitransversus, 853
Pentac effects on Tetranychus urticae, 640
Pentacora sphacelata, 1208
Pentalobus, 870
Pentatomoidea, morphology, 681
Perilampus robertsoni, 251
  similis, 1463
Perilimnia, 573
  albifacies, 573, 581
  cineritia, 576
  taxonomy and bionomics, 572
Periplaneta, 192, 711
  americana, 189, 596, 678, 712, 726, 1313
  americana, fluctuations in sugar and uric in, 71
  australasiae, 178, 596
  brunnea, 190, 596
  brunnea, note on, 678
  fuliginosa, 179, 678
  japonica, 179, 596
  svenhedini, 179
Perisphaerus, 201
Perissorhynchus, 80
Peritaxia sp., 213
Perkinsiella saccharicida, polymorphism in, 247
  vitiensis, parasitism in, 669
Perlesta placida, morphology and mating behavior of, 1433
Persicargas, subgenus, new species of, 885
Pesticide Handbook-Entoma, 344
Phaenicia cuprina, 450
  sericata, 306, 450
Phaenopria occidentalis, 221
Phaeochrous, 875
  emarginatus, 1389
  hirtipes, 872
Phaeogenes hariolus, 1471
  sp., 219, 1471
Phaeoura mexicanaria, 355
Phanaeus, 876, 1394
  igneus floridanus, 1392
  vindex, 1389
Phanerotoma toreutae, parasite of pine cone moth, 214
Pharochilus, 871
Phenacaspis pinifoliae, 930
Phenology of: Culicoides, 1153
  grasshopper, 881
Pheosia rimosa, 356
Pheromone concentrations needed by Epiphyas postvittana, 1206
Phidon, 198
Philaenus spumarius, 853
Phileurus, 877
Phimophorinae, 79
Phimophorus, 92
Phlegethontius florestan, 355
  quinquemaculata, 355
Phlibostroma quadrimaculatum, 453
Phoebis sennae, 356
Phobetus, 876, 1394
  comatus, 872
Phoetalia, 201
  pallidus, 201
Phoetaliotes nebrascensis, 453
  food preference, 323
Pholadoblatta, 194
Pholus typhon, 355
Phonolibes, 80
  tricolor, 85
Phonolibines, 80
Phoraspis, 201
Phormia regina, 450, 614
Phorticolea, 198
  testacea, 181
Phortioeca, 201
  phoraspoides, 178, 596
  sp., 201
Phortioecoides, 201
Phosphate, intake by common cattle grubs, 843
Photometric technique for evaluation of phytophagous insect feeding preferences, 319
Photoperiodic induction of Dermacentor albipictus larvae, 285
Phrydiuchus, new species of, 1292
  speiseri, 1300
  spilmani, 1298
  spp., 1296
  tau, 1295
  topiarius, 1294
Phryxe pecosensis, 1471
Phthorimaea operculella, 1407
  sex pheromone gland in, 670
Phyllodromica, 195

bivittata, 176
brullei, 176
(Luridiblatta) trivittata, 199
Phyllopalpus pulchellus, 752
Phyllopertha horticola, 571
Phyllophaga, 876
crassissima, 1388
micans, 1389
spp., 61
Phyllotocus, 876
Phyllotreta cruciferae, 853
striolata, 853
Phylogeny of narpactoroid complex, 74
Phymatinae, 79
Phymatosilpha, 198
Physiological evidence for color receptors in butterfly eye, 1497
Physiology of Culex tarsalis, 13
Physoderes, 92
sp., 91
Physoderinae, 79
Physoderines, 92
Physoderoides, 92
Phytobia sp., 932
Phytophagus: ground beetles, 909
insects, feeding preferences, 319
Phytoseiulus persimilis, 978
Pieris brassicae, 125
rapae, 243, 853
Pimelia, 237
Pimpla annulipes, 164
Pine: chrysomelid in Wisconsin, 1
cone moth, Phanerotoma parasite of, 214
needle scale, seasonal history of, 930
Pine root tip weevil, life history and damage of, 838
wounding pine root, 1499
Piratinae, 79
Pisena longirostris, 691
Pissodes affinis, 148
approximatus, 147
approximatus, sound in, 134
bark weevils, hosts and breeding sites, 147
dubius, 148
fasciatus, 148
nemorensis, 148
radiatae, 148
rotundatus, 148
schwarzi, 147
similis, 148
strobi, 148, 211, 835
strobi, sound in, 134
terminalis, 147
Platycerus, 870
oregonensis, 1389
Platydema oregonense, fecal filaments of, 444
Platynus, 910
Platyptilia grandis, 355
Platypus flavicornis in southern pine beetle infestations, 1008
Platytataria, 691
Platytatini, 681
Platytatus, 692
ambiguus, 691
Platyzosteria, 192
(Melanozosteria) aterrima, 180
(P.) melanaria, 180
(Melanozosteria) soror, 193
Plectoptera, 198, 1433
picta, 189
poeyi, 199
Pleocoma, 872
minor, 871, 1389
Pleocominae, 1391
Pleogaster, 77
Plodia interpunctella, 662
association of Melichares tarsales with, 747
Plusiotis, 877
gloriosa, 872
Podolasia, 1394
Podosesia fraxini, 1214
Poecilus, 910
Pogonomyrmex barbatus, aliphatic ketones and alarm behavior, 380
comanche, aliphatic ketones and alarm behavior, 380
occidentalis, 764
occidentalis, bionomics and nest structure, 1166
owyheei, 1166
sciophila, 768
Pollen and alimentary canal of honey bees, 43
Polyaspis, 64
Polymorphism in sugarcane leafhopper, 247
Polyphaga, 194
aegyptiaca, 194
Polyphagidae, 179
Polyphylla, 876
decemlineata, 872
Polyzosteria, 192
limbata, 180
viridissima, 180
Polyzosteria/Platyzosteria novaeseelandiae, 192
Ponerobia, 84
Popilius, 870
disjunctus, 871, 1388
Popillia, 877
Population growth models, 437
increase of Pseudopityophthorus, 448
models for suppression of sugarcane borer, 21
Poroblatta, 201
cylindrica, 201
Potassium content of arthropods, 57
Potato tuberworm, Orgilus lepidus parasite of, 1407
moth, sex pheromone gland in, 670
Prairie grain wireworm, eggs, 567
Praon exsoletum, bioclimatic studies, 1026
Preference amond boll weevil hosts, 261
Prenolepis imparis, 61
Prionogaster serratus, 689
Prionogastrini, 689
Prionoxystus robiniae, 355, 1214
Prionus laticollis, pupa, 1331
Pristomerus sp., 1464
Prociphilus, 1130
a. alnifoliae, 1130
alnifoliae *arbutifoliae*, 1131
alnifoliae fitchi, 1133
americanus, 1136
carolinensis, 1139
piniradicivorus, 1141
Prodenia litura, morphology of nervous system, 525
ornithogalli, 250, 803
sp., 662
Prodinychus, 64
Production of growth retardant in mosquitoes, 1325
Progonogamia, 201
Prolimacodes badia, 355
Proscratea, 182
Proscratea complanata, 186
Prosopocoilus, 870
Protaetia, 877
Protaplonyx, 1355
hagani, 1355
sarcobati, 1355
Protocalliphora metallica, overwintering, 1205
Proventricular neural tissue of mosquitoes, 345
Prunus finger gall mite, biology and morphology, 269
Psallidae, 870
Psammobius, 876, 1393
Pselliopus, 964
cinctus, 81
Pseudagapostemon, 654
Pseudaletia unipuncta, 803
high temperature response of, 1303
Pseudaphycus n. sp., 1118
Pseudaugochloropsis, 653
graminea, 655
Pseudectobia, 198
Pseudhapigidia brunnea, 356
Pseudischnoptera, 198
Pseudoceratinoptera, 195
Pseudoderopeltis, 193
Pseudoglomeris, 201
Pseudolampra, 192
Pseudomops, 195
cincta, 195
intercepta, 195
septentrionalis, 195
Pseudophoraspis, 201
nebulosa, 201
Pseudophyllodromia, 195
Pseudopityophthorus, population increase, 448
minutissimus, 448
pruinosus, 448
Pseudoplusia includens, 507
Pseudopomala brachyptera, 453
Pseudosarcophaga affinis, 1471
Pseudosigmella, 199
Pseudosinella spp., 541
Pseudosymploce, 198
Pseudothyrsocera, 195
lugubris, 199
rectangulartervitta, 195
Psittacobrosus, from parrots, 393
dalgleishi, 394
nandayi, 393
versicoluri, 394
Psoloessa d. delicatula, 453
Psorophora confinnis, 866
cyanescens, 867
discolor, 866
ferox, 867
Psylliodes convexior, 853
punctulatus, 853
Pterostichus melanarius, 911
obscurus, 61
Ptyoiulus impressus, 60
Pupa of Prionus laticollis, 1331

Pupation rhythm in Aedes taeniorhynchus, 1079
Pycnoscelus, 201
indicus, 201, 596
surinamensis, 201
Pyrrhopyge araxes, 356

R

Race E of Hessian fly, 677
Rachiplusia ou, 508
Radiation (see Methods)
Rana spp., Forcipomyia fairfaxensis feeding on, 451
Repellency of citrus leaves to aphids, 399
Raphidosoma, 80
Raphidosomines, 80
Raphidosomini, 92
Rearing (see Methods)
Red-banded leaf roller, vitamin requirements, 611
Red pine: cones attacked by Eucosma monitorana, 1284
parasites of Rhyacionia buoliana in, 163
Red-rose linkage in German cockroach, 665
Reduviinae, 79
Reduvioidea, morphology and phylogeny, 74
Reproduction (see Methods)
Reserpine effect on house fly, 663
Resistance: mechanism in Hampea sp. to boll weevil, 542
of mosquitoes to DDT, 1270
Responses of insects to nicotine, 141
Reticulitermes flavipes, 541, 1274
feeding responses, 335
Rhabdoblatta, 201
everetti, 202
ferruginosa, 202
humeralis, 201
insueta, 202
plebeja, 202
pustulata, 202
rustica, 202
Rhabdopterus picipes, 212
Rhagoletis pomonella, 19
Rhapactor, 79
Rhaphidosoma sp., 82
Rhinoncus coarctatus, 1295
Rhizoglyphus echinopus, 106
Rhizomeria, 1144
Rhodainiella, 87
Rhombonalia, 877
Rhopalosiphum maidis, temperature and light effects on takeoff, 1176
pseudobrassicae, 854
Rhyacionia buoliana, parasites, 163
frustrana, attraction to light, 443
Rhyacophila, feeding habits of larvae, 894
arnaudi, 895
grandis, 895
vaccua, 895
vaefes, 895
vagrita, 895
vepulsa, 895
verrula, 895
Rhynchophorus palmarum, 1467
Rhynchosciara, culture method for, 94
Rhytidometopum, 198
albomarginatum, 199
Rhyzopertha dominica, 768, 1011
Riatia, 198
venezuelana, 199
Rice stem borer, parasites to control, 797
Richanitschia, 198
Robshelfordia, 195
Root wounding of pine, cage to study, 1499
Rudebeckia, 195
Ruizantheda mutabilis, 659
proxima, 659
Rutelinae, 1394

S

Saicinae, 79
Saissetia coffeae, 300
Salda coriacea, 1208
Saldidae, lectotype designations for, 1207
Saldula orbiculata, 1208
separata, 1208
Salganea, 201
Salyavatinae, 79
Saperda calcarata, 1214
inornata, oviposition, 308
Sarcobatus vermiculatus, 1355
Sarcophaga aldrichi, 1471
Scabina, 193
antipoda, 202
Scalida, 195
Scambus hispae, 1471
sp., 164
(S.) tecumseh, 164
Scarabaeidae, 872, 1391
Scarabaeinae, 1394
Scarabaeoidea, spiracles, 869, 1388
Scarabaeus, 876
sp., 1392
Scarites, 910
Scatophaga stercoraria, 776
Sceliphron, 711
caementarium, 712
Scent fluid of: Calosoma, 1498
Dicaelus, 1493
Leptoglossus clypeatus, chemical analysis, 673
Pasimachus, 1492
Schistocerca americana, 453
v. vaga, 453
Schistopeltis, 201
Schizaphis graminum, maize dwarf mosaic virus acquisition by, 403
temperature and light effects on takeoff, 1176
Schwiebia falticus, 108
rocketti, 108
Sciablatta, 196
Sciara sp., 342
Scolytus multistriatus, 103, 730
Scythropus californicus, biology, 117
Scytonotus granulatus, 60
Seasonal: distribution of Tabanidae, 1429
occurrence of Culex tarsalis, 13
Seladonia, 653
Selenymenum piriforme, 684
Sepina, 692
seychellensis, 691
urolaboides, 691
Sepinaria, 691
Sepinini, 691
Serica, 876
falli, 873
Sericomyrmex, growth of colony, 244
Serotonin creatine sulfate effect on house fly, 663
Sesamia inferens, 797
Seven-legged mirid, 1492
Sex determination of: oakworm and yellow-necked caterpillar pupae, 931
Vogtia malloi pupae, 1212
Sex pheromone: gland in potato tuberworm, 670
of Tenebrio molitor, 846
of Trypodendron lineatum, 454
Sexual: activity and longevity of southern green stink bug, 1246
characters of Blaberus discoidalis, 734
dimorphism in alfalfa weevils, 1268
stimulation of male Lucilia cuprina and Drosophila melanogaster, 1419
Shannonia, 577
costalis, 577
meridionalis, 577, 585
taxonomy and bionomics, 572
Shawella, 199
couloniana, 185, 596
Shelfordella, 192
Shelfordina, 195
Shirakia schoenobii, 799
Short-tailed cricket, life history, 337
Sialis californica and S. rotunda, life history, 549
Siavana rigida, 356
Sibylloblatta, 201
Simulium, two new species, 157
blantoni, 284
(Hemicnetha) *dehnei*, 162
dugesi, 284
earlei, 160
fuliginis, 281
haematopotum, 284
huarayacu, 284
jujuense, 281
(Hemicnetha) *keenani*, 157
lahillei, 284
longithallum, 284
marathrumi, 284
mediovittatum, 284
mexicanum, 160
opalinifrons, 281
paynei, 160
(Hemicnetha) pulverulentum, 160
querrerense, 162
romani, 284
rubicundulum, 162
smarti, 160
subexiguum, 284
trivittatum, 284
veracruzanum, 284
vittatum, 55
yepocapense, 162
Sinea diadema, 81
Sinodendron, 870

Sitona californica, 213
hispidula, 212
Sitophilus, 1011
oryzae, 173
oryzae, identity, 169
Skatitoxenini, 1190
Skatitoxenus, 1190
coatoni, 1191
Smerinthus cerisyi, 355
jamaicensis, 355
Smicronyx squalidus, 212
Sodium content of arthropods, 57
Soil condition in migrations of Hippelates, 136
Sound in white-pine weevil and northern pine weevil, 134
Southern: pine beetle, Platypus flavicornis in infestations, 1008
green stink bug, sexual activity and longevity, 1246
Spalangia cameroni, 130, 220
drosophilae, 221
endius, 130
longepetiolata, 130
nigra, 221
nigripes, 130
nigroaenea, 130
Speculitermes, 1202
Spermatophores of Blattaria, 595
Speyria atlantis, 356
Sphaenognathus, 870
Sphaeridopinae, 79
Sphaeroderus stenostomus, 61
Sphecodes, 654
Sphegigaster sp., 130
Sphenophorus aequalis, 210
cariosus, 210
cuitellatus, 210
maidis, 210
marinus, 210
parvulus, 210
pertinax, 210
placidus, 210
setiger, 210
sp., 210
v. venatus, 210
venatus vestitus, 210
zeae, 210
Sphinx chersis, 355
Spider mite, biology, 898
Spiracles of Scarabaeoidea, 869
Spodoptera exigua, 1211
frugiperda, 803
Spotted cutworm, climbing responses, 1403
larval responses to wavelengths, 941
Spring emergence of carrot beetle, 1336
Squamoptera, 195
Stabilization lagoons, Chironomidae in, 97
Stable fly, flight activity, 1046
Stagmomantis californica (?), 767
Stagona, 1146
crataegistrobi, 1146
piceaerubensis, 1149
xylostei, 1150
Staphylinus badipes, 61
Starvation effect on: chemoreceptors of Hybomitra lasiophthalma, 1217
pea aphid, 987
Stenectoneura, 198
Stenobracon nicevillei, 799
Stenopodinae, 80
Sterile culture of Musca sorbens, 450
Sterility, inherited partial, 21
of sugarcane gray borer, 1106
Sterol, ergosterol source to insects, 413
Stictolampra, 201
trilineata, 202
Stomoxys calcitrans, 130, 385, 864, 1047
pupae parasitism, 128
Stored-grain insect reproduction, 1011
Stored-product insects and Trogoderma granarium, 172
Strategus, 877
antaeus, 1390
julianus, 873
Strawberry aphid on holidic diets, 1490
Strigoderma, 877
Strigodermella, 877
Striped mealybug, enemies, 1117
Nephus regularis predator of, 953
Styphon, 201
Suction-electrode study of house fly heart, 375
Sugar in Periplaneta americana hemolymph, 71
Sugarcane borer, population models for suppression, 21
Sugarcane gray borer, sterility, 1106
Sugarcane leafhopper: parasitism in, 669
polymorphism in, 247
Sundablatta, 195
Supella, 195
longipalpa, 176
supellectilium, 176
Survival of strawberry aphid, 1490
Swarming of winged ants, 1256
Symbiontic interrelationships between microbes and ambrosia beetles, 413
Sympherobius barberi, 1118
Symploce, 195
cinnamomea, 182
(?) fusca, 184
hospes, 189
jamaicana, 182
radicifera, 189
Symplocodes, 196
n. sp., 199
ridleyi, 199
Synonymy of Pissodes bark weevils, 146
Systematics of: crickets, Orocharis, 752
Cyrtoxipha, 945

T

Tabanid: hosts in Louisiana, 1043
larval habitats and population densities, 1203
Tabanidae, abundance and seasonal distribution, 1429
collecting methods for, 50
vector of anaplasmosis, 863
Tabanus, 1430
abdominalis, 867
acutus, 1045
americanus, 866, 1045
atratus, 866, 1430
calens, 55, 1430
equalis, 866, 1045
fuscicostatus, 866, 1045, 1203
fusconervosus, 54, 1432
lineola, 54, 867, 1045, 1203, 1430
lineola var. hinellus, 1045
marginalis, 54, 1433
melanocerus, 54
nefarius, 1045
nigripes, 1045
nigrivittatus, 1045
novaescotiae, 1430
petiolatus, 1430
proximus, 867, 1045
pumilis, 54, 1430
quinquevittat-s, 54, 1432
reinwardtii, 1430
sackeni, 54, 1430
similis, 55, 1431
sparus, 55, 1430
sparus var. milleri, 54, 1431
stygius, 867, 1203
subsimilis, 867
sulcifrons, 56, 1203, 1430
trimaculatus, 54, 867, 1430
wilsoni, 867
Tadarida brasiliensis, 805
Taeniopoda eques, 927, 933
Tairella, 198
Tanymecus confusus, 211
Tartaroblatta, 195
Taurocerastes, 874
Taurocerastinae, 1393
Taurocopris, 876, 1394
mimas, 1392
Taxonomy of: Idiostolidae, 485
Perilimnia and Shannonia, 572
Tegea, 82
atropica, 83
Tegeines, 82
Tegeini, 92
Tegellula, 82
Telea polyphemus, 355, 1220
Telenomus arzamae, 752
rowani, 798
Temelucha philippinensis, 709
rhyacioniae, 1471
sp., 1464
sp. nr. nigromaculata, 799
Temnelytra, 193
truncata, 202
Temnopteryx, 195
Temnosoma, 653
Temperature (see Methods)
Tenebrio, 711
molitor, 103, 172, 712, 926
molitor, sex pheromone of, 846
sp., 767
Tentyria, 237
Terastia meticulosalis, 355
Termites: foraging galleries, 536
in Wisconsin, 1274
ionizing radiation effects on, 120
Termitoblatta, 199
Termitopaedini, 1190
Tessaratomidae of uncertain position, 681
Tessaratominae, 689
Tetanops myopaeformis, 234
Tetranychid mites, Agistemus exsertus as predator, 660
Tetranychus autumnalis, 461
cinnabarinus, 650, 660
evansi, biology, 898
urticae, 247, 978, 1262

urticae, eyes, 461, 466
urticae, Pentac effects on, 640
Tetrapolipus, new species of from Hippodamia, 1465
hippodamiae, 1465
rhynchophori, 1467
Tetrastichus ayyari, 799
coerluescens, 1471
incertus, distribution and establishment, 812
schoenobii, 798
sp., 109
Tetrigidae, 453
Thalassa montezumae, 858
Thecesternus humeralis, 211
Theganopteryx, 198
Therea, 194
petiveriana, 194
Therioaphis maculatus, 1026
trifolii, 1026
Thermistor thermometer, 443
Thermobia, 711
domestica, 712, 1369
Thomasiella, 1349
Thoracic spiracles of Scarabaeoidea, 1388
Thyanta punctiventris, 965
Thyce, 876
Thyridopteryx ephemeraeformis, lethal effects of gamma radiation, 1113
Thyrsocera, 192
Thysanura, 1367
Ticks, oviposition and hatching, 628
Tineola bisselliella, 662
Tissue sections, liquid nitrogen fixation and, 246
Tivia, 194
Tobacco budworm, gamma radiation effect on tissues, 1340
Tobacco hornworm: Apanteles congregatus parasite of, 342
diapause, 1252
Tolype distincta, 355
Toxocerus, 875
Trachyrhachys k. kiowa, 453
Trail laying by Chlosyne lacinia, 674
Transferring newly hatched larvae, 1211
Transmissibility of bean yellow mosaic virus by aphids, 47
Transmission of bean yellow mosaic virus, 1398
Traps equipped with UV lamps, 1248
Trazezonotus arenarius, 965
Triatominae, 79
Tribal revision of Nearctic Lasiopteridi, 1348
Tribocephalinae, 79
Tribolium, identification of pupae, 1232
anaphe, 1235
brevicornis, 1235
castaneum, 172, 1011, 1235
confusum, 768, 921, 1011, 1235
confusum, two-headed pupa in, 1205
destructor, 1235
madens, 1235
Tribonium, 201
Trichatelura borgmeieri, 1367
manni, 1367
Trichcorhyssemus, 876
Trichiotinus, 877
bibens, 1390
Trichoblatta, 201
Trichogramma australicum, 798
evanescens, egg suitability for parasitism by, 1482
minutum, 1471
minutum, host age and parasitism by, 1476
semblidis, 551
Trichoplusia ni, 356, 507, 803, 1211, 1476
oxygramma, 508
Trichopria sp., 130
Trichoptera, 894
Trigonopeltastes, 877
Trigonoscuta pilosa, 213
Trimerotropis compestris, 453
fontana, 453
gracilis sordida, 453
inconspicua, 453
lacticincta, 453
p. pallidipennis, 453
Trioblattella, 195
Trisecus, 499
armatus, 486, 499
pictus, 486, 499
Tritoxa spp., 234
Troginae, 1393
Trogoblattella, 196
nullaborensis, 193
Trogoderma granarium, 174
response of stored-product insects, 172
Trogoderma parabile, 763
variabile, 763
Tropistermus lateralis nimbatus, 921
Trosia obsolescens, 355
Trotteria, 1359
caryae, 1360
kernerensis, 1360
Nearctic species, 1360
Trotteriini, 1359
Trox, 874, 1393
atrox, 1390
Trybliographa parasites, Hippelates encountered by, 136
Tryonicus, 192
parvus, 192
Trypodendron lineatum, internal organ changes, 995
sex pheromone, 454
Tryporyza incertulas, 797
innotata, 797
Two-headed pupa in Tribolium confusum, 1205
Two-spotted spider mite, eyes, 461, 466
internal anatomy, 247
Tychius picirostris, 853
stepheni, 853
Typhlodromina, conspicua species-group of, 406
eharai, 412
tropica, 412
subtropica, 412
Typhlodromus mcgregori, life history, 1261
Typhoeus, 874

U

Ultrasound, bollworm moths response to, 801
effects on moths, 1248
Heliothis spp. response to, 1122
Ultraviolet lamps, traps equipped with, 1248
Uniplectron, 964
Unisexual population of pine needle scale, history of, 930
Upis ceramboides, life history, 922
Urbanus dorantes, 356
Uric acid: analysis for alfalfa seed chalcid evaluation, 1379
determination in insect feces, 925
in Periplaneta americana hemolymph, 71
Urosigalphus schwarzi, 235

V

Valgus, 877
Vatesus, 1370
Vespertilio fuscus, 805
Vejovis carolinus, 60
Vesciinae, 79
Vespula maculata, 278
maculifrons, 278
Vitamin requirements for red-banded leaf roller, 611
Vogtia malloi, sex determination, 1212

W

Walshomyia, 1350
Wasp venoms, mass collection, 277
Wasps, biology of Cercerini, 209
Water and Culicoides, 929
Weismann's ring, correlation of cellular activity in, 446
Western corn rootworm, feeding behavior of larvae, 808
Western horse lubber grasshopper, oxygen consumption, 927
Wheat, stored-grain insects in, 1011
White-pine weevils: dispersion, 835
sound in, 134
Winged ants, swarming, 1256
Winter cress as host to crucifer fauna, 852
Winter tick, photoperiodic induction of larvae, 285
Winthemia rufopicta, 251
sp., 251
Woodpecker predation on insects, 1214

X

Xanthippus corallipes, 453
Xanthopimpla stemmator, 799
Xenosternum sp., 799
Xenotrachelielia inimica, 483
Xeralictus, 654
Xestoblatta, 198
immaculata, 178
Xosablatta natalensis, 199
spp., 193
Xosaia, 198

Xyleborus, 1008
Xyleborus ferrugineus, 413, 592, 1009
posticus, 1009
Xyloryctes, 877

Y

Yellow-fever mosquito, amino acids in, 742
Yellow mutant strain of large milkweed bug, 246
Yellow-necked caterpillar, sex determination of pupae, 931
Yellow-striped armyworm, parasites of, 250

Z

Zabrus, 910
Zarhipis sp., 680
Zatropis perdubius, boll weevil parasite, 674
Zele sp., 251
Zellus bilobatus, 81
Zelus, 964
renardii, 765
Zetha, 194
Zetobora, 201
Zetoborella, 201
Zeuzera pyrina, 355
Zonioploca, 193
Zorotypus hubbardi, 541
Zuluia, 201

ANNALS *of the*

ENTOMOLOGICAL SOCIETY OF AMERICA

Volume 62—1969

Published by the
ENTOMOLOGICAL SOCIETY OF AMERICA

ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

WALLACE P. MURDOCH, *Executive Secretary*
RALPH W. BUNN, *Managing Editor* R. H. NELSON, *Editorial Associate*

4603 Calvert Road, College Park, Maryland 20740

WILLIAM H. ANDERSON, *Editor*
Route 2, Snow Hill, Maryland 21863

EDITORIAL BOARD

R. H. ARNETT, JR., *Chairman*, Lafayette, Ind. (A, 1969)

O. P. BRELAND, Austin, Tex. (D, 1970) M. H. J. WEIDEN, Clayton, N. C. (B, 1972)
K. G. SWENSON, Corvallis, Oreg. (C, 1971) G. W. BYERS, Lawrence, Kans. (A, 1973)

A bimonthly journal devoted to the following basic subdivisions of entomology: biology, biochemistry, ecology, genetics, morphology, pathology, physiology, and systematics. Contributions should not have economic application or chemical control as their primary objective. However, research on economically important arthropods and studies involving the use of chemicals as metabolic inhibitors are within the scope of this journal. Authors are requested to consider carefully these criteria before submitting their manuscripts.

TERMS OF SUBSCRIPTION. Non-members in North America and U. S. Possessions—$20.00 per year; elsewhere—$20.00 plus $1.00 postage. Single copies $5.00. **Deliveries overseas** are not guaranteed and foreign mailings are made at the subscriber's risk.

A *single order* for the ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA and the JOURNAL OF ECONOMIC ENTOMOLOGY, *if sent to the same address*, may be obtained at a **COMBINATION PRICE** of $35.00 per year in North America and U. S. Possessions; $37.00 elsewhere.

LOST NUMBERS. Missing numbers cannot be supplied free of charge unless notice is received within 60 days after the appearance of issues concerned.

BACK NUMBERS. The Executive Secretary will be glad to quote prices upon request.

REPRINTS. No gratis copies are supplied. An order form and schedule of prices which will apply to orders received before the ANNALS is printed are sent with proof. For price schedule, see BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA, Volume 14, No. 3, September, 1968.

BUSINESS COMMUNICATIONS to the Society and **SUBSCRIPTION AND MATTERS PERTAINING TO ADVERTISEMENTS** should be sent to the Executive Secretary, Entomological Society of America, 4603 Calvert Road, College Park, Md. 20740. Changes of address must reach the office of the Executive Secretary 5 days prior to the month of issue to be effective for that month. Members should make use of the postal regulations which provide for forwarding of second class mail if postage upon delivery is guaranteed.

ALL MANUSCRIPTS and other copy for the ANNALS should be sent to the Executive Secretary. Prompt publication of acceptable matter may be secured by payment of the cost of printing and mailing ($42.00 per page). Before preparing manuscripts for publication in the ANNALS, authors are urged to consult the Publication Policies and Instructions for Contributors given in the BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA Vol. 15(2): 74–77, June 1969. Reproduction of author's summaries is authorized.

PAGE CHARGES are $24.00 per page, partial pages proportionately. This charge is waived for those papers of 1 printed page or less. See BULL. ENTOMOL. SOC. AMER. 15(2): 74–77 (June 1969).

ENTOMOLOGICAL SOCIETY OF AMERICA

OFFICERS FOR 1969

President—C. W. Sabrosky, Washington, D. C.
President-Elect—Paul O. Ritcher, Corvallis, Oregon
Executive Secretary—Wallace P. Murdoch, College Park, Maryland

GOVERNING BOARD

C. W. Sabrosky, Washington, D. C. (1970)

P. A. Dahm, Ames, Iowa (North Central, 1969)
H. S. Dybas, Chicago, Illinois (A, 1969)
D. C. Earley, Los Fresnos, Texas (Southwestern, 1970)
R. E. Hamman, Ardsley, New York (Eastern, 1970)
H. F. Madsen, Summerland, British Columbia (F, 1970)
W. P. Murdoch, College Park, Maryland (Non-Voting)
B. B. Pepper, New Brunswick, New Jersey (Past-President, 1969)
A. S. Perry, Savannah, Georgia (B, 1969)
David Pimentel, Ithaca, New York (C, 1970)
K. D. Quarterman, Savannah, Georgia (D, 1971)
H. T. Reynolds, Riverside, California (Pacific, 1971)
P. O. Ritcher, Corvallis, Oregon (1971)
J. S. Roussel, Baton Rouge, Louisiana (Southeastern, 1971)
J. F. Spears, Alexandria, Virginia (E, 1971)

BRANCH OFFICERS

Chairmen

R. E. Heal—Elizabeth, New Jersey (Eastern)
A. C. Hodson—St. Paul, Minnesota (North Central)
R. E. Rieder—Yakima, Washington (Pacific)
C. M. Beckham—Experiment, Georgia (Southeastern)
N. M. Randolph—College Station, Texas (Southwestern)

Chairmen-Elect

S. G. Gesell—University Park, Pennsylvania (Eastern)
R. T. Everly—Lafayette, Indiana (North Central)
Martin Sherman—Honolulu, Hawaii (Pacific)
S. R. Morris—New Orleans, Louisiana (Southeastern)
Ted McGregor—San Antonio, Texas (Southwestern)

Secretary-Treasurers

H. T. Streu—New Brunswick, New Jersey (Eastern)
J. T. Schultz—Fargo, North Dakota (North Central)
W. W. Allen—Berkeley, California (Pacific)
L. C. Kuitert—Gainesville, Florida (Southeastern)
H. L. McMenemy, Jr.—Dallas, Texas (Southwestern)

AUTHOR INDEX TO VOLUME 62

January ..... 1–254 May ..... 461–680 September 935–1220
March ..... 255–460 July ..... 681–934 November 1221–1500

A

ABO ELGHAR, M. R., see E. A. ELBADRY 649
ABO ELGHAR, M. R., see E. A. ELBADRY 660
ADAMS, CAROL, see EDWARD H. WOLLERMAN .. 647
ADEESAN, C., A. J. TAMHANKAR, AND G. W. RAHALKAR—Sex Pheromone Gland in the Potato Tuberworm Moth, *Phthorimaea operculella* 670
AGEE, H. R.—Response of Flying Bollworm Moths and Other Tympanate Moths to Pulsed Ultrasound 801
AGEE, H. R.—Mating Behavior of Bollworm Moths 1120
AGEE, H. R.—Response of *Heliothis* spp. (Lepidoptera: Noctuidae) to Ultrasound When Resting, Feeding, Courting, Mating, or Ovipositing 1122
AGEE, H. R.—Acoustic Sensitivity of the European Corn Borer Moth, *Ostrinia nubilalis* .. 1364
AGEE, H. R., AND J. C. WEBB—Effects of Ultrasound on Capture of *Heliothis zea* and *Ostrinia nubilalis* Moths in Traps Equipped with Ultraviolet Lamps 1248
AKRE, ROGER D., see RICHARD L. TORGERSON .. 1367
ALLEN, DOUGLAS C., FRED B. KNIGHT, JOHN L. FOLTZ, AND WILLIAM J. MATTSON—Influence of Parasites on Two Populations of *Choristoneura pinus* (Lepidoptera: Tortricidae) in Michigan 1469
AMMAN, GENE D., see JOHN A. WITTER 718
ANDERSON, N. H., see K. M. AZAM 549
ANDERSON, P. K., see T. F. HALL 242
ANDERSON, ROBERT C., AND J. D. PASCHKE—Additional Observations on the Biology of *Anaphes flavipes* (Hymenoptera: Mymaridae), with Special Reference to the Effects of Temperature and Superparasitism on Development 1316
ANTONELLI, ARTHUR L., see PAUL P. COOK, JR. 264
APPLEBY, J. E., see G. L. NORDIN 287
ATMAR, GERALD L., see KENNETH W. STEWART 1433
AZAM, K. M., AND N. H. ANDERSON—Life History and Habits of *Sialis rotunda* and *S. californica* in Western Oregon 549

B

BAERWALD, ROY J., see G. MALLORY BOUSH .. 19
BAKER, J. M., see D. M. NORRIS 413
BAKER, J. M., see D. M. NORRIS 592
BALLARD, RALPH C., AND M. S. HALL—A Suction-Electrode Study of the House Fly Heart 375
BANKS, WILLIAM M.—Observations on the Rearing and Maintenance of *Blaberus giganteus* (Orthoptera: Blaberidae) 1311
BARNES, M. M., M. J. WARGO, AND ANGELICA MARIN—Studies on the Biology of *Margarodes vitium*, a Ground Pearl (Homoptera: Margarodidae) on Roots of Grapevines 1032
BARRAS, STANLEY J., AND DALE M. NORRIS—Bionomics of *Bucosma monitorana* (Lepidoptera: Tortricidae) Attacking Red Pine Cones in Wisconsin 1284
BARRETT, C. C., see W. F. CHAMBERLAIN 843
BARTELL, R. J., AND H. H. SHOREY—Pheromone Concentrations Required to Elicit Successive Steps in the Mating Sequence of Males of the Light-Brown Apple Moth, *Epiphyas postvittana* 1206
BARTELL, R. J., see H. H. SHOREY 1419
BARTLETT, A. C., see S. BRADLEIGH VINSON .. 1340
BARTON, L. B., see H. H. SHOREY 1419
BASS, MAX H., see B. LAMAR LEE 1216
BAUER, J. W., AND R. E. MONROE—Metabolism of Cholesterol-4-^{14}C in Insecticide-Resistant and Susceptible Strains of Aseptically Reared House Flies, *Musca domestica* 1021
BEAVERS, J. B., see H. TASHIRO 279
BEAVERS, J., see H. TASHIRO 935
BENHAM, GERALD S., JR.—The Pupa of *Prionus laticollis* (Coleoptera: Cerambycidae) 1331
BENJAMIN, DANIEL M., see JOHN A. SCHENK 480
BENJAMIN, D. M., see W. H. KEARBY 838
BENJAMIN, D. M., see W. H. KEARBY 1499
BENTON, ALLEN W., see ROGER P. SIMON 277
BERBERET, R. C., AND P. L. LANDERS—Correlation of Cellular Activity in Weismann's Ring with Molting Cycles in Larvae of *Musca autumnalis* 446
BERG, C. O., see V. W. KACZYNSKI 577

BERRY, I. L., see J. A. MILLER 1046
BERRY, RALPH E.—Effects of Temperature and Light on Takeoff of *Rhopalosiphum maidis* and *Schizaphis graminum* in the Field (Homoptera: Aphididae) 1176
BERRY, RALPH E.—Effects of Temperature and Light on Dispersal of the Pea Aphid, *Acyrthosiphon pisum*, and a Braconid Parasite, *Aphidius pisivorus*, in the Field 1185
BHAKTHAN, N. M. G., K. K. NAIR, AND JOHN H. BORDEN—Occurrence of a Fat Body Layer Around the Testes of *Ips confusus* (Coleoptera: Scolytidae) 1495
BHATTACHARYA, A. K., AND G. P. WALDBAUER—Quantitative Determination of Uric Acid in Insect Feces by Lithium Carbonate Extraction and the Enzymatic-Spectrophotometric Method 925
BLAND, ROGER G., AND WILLIAM L. NUTTING—A Histological and Biometrical Study of Wing Development in the Grasshopper *Melanoplus lakinus* 419
BLICKENSTAFF, C. C.—Mating Competition Between Eastern and Western Strains of the Alfalfa Weevil, *Hypera postica* 956
BLONDHEIM, SYRIL A., AND AHARON SHULOV—Biology and Phenology of the Grasshopper *Dociostaurus curvicerus* in Israel 881
BLUM, M. S., see J. B. WALLACE 503
BOGAWAT, JATAN KUMARI, see R. P. SRIVASTAVA 958
BOOTH, GARY M.—Use of Uric Acid Analysis to Evaluate Alfalfa Seed Chalcid Infestation in Alfalfa Seed 1379
BORDEN, J. H., M. MCCLAREN, AND M. A. HORTA—Fecal Filaments Produced by Fungus-Infesting Larvae of *Platydema oregonense* 444
BORDEN, JOHN H., AND CATHERINE E. SLATER—Sex Pheromone of *Trypodendron lineatum*: Production in the Female Hindgut-Malpighian Tubule Region 454
BORDEN, JOHN H., see N. M. G. BHAKTHAN .. 1495
BORG, THOMAS K., AND DALE M. NORRIS—Feeding Responses by *Hylurgopinus rufipes* to Combined Chemical and Physical Stimuli 730
BOTTRELL, D. G.—Notes on Parasites Attacking the Yellow-Striped Armyworm in Oklahoma 250
BOUDREAUX, H. BRUCE—The Identity of *Sitophilus oryzae* 169
BOUSH, G. MALLORY, ROY J. BAERWALD, AND SATORU MIYAZAKI—Development of a Chemically Defined Diet for Adults of the Apple Maggot Based on Animo Acid Analysis of Honeydew 19
BRADLEY, R. H. E., see L. R. NAULT 403
BRAND, J. M., see R. M. CREWE 1212
BRANSON, TERRY F., AND ELDON E. ORTMAN—Feeding Behavior of Larvae of the Western Corn Rootworm: Normal Larvae and Larvae Maxillectomized with Lazer Radiation 808
BRAUN, B. H., see P. E. SONNET 667
BRAUN, B. H., see M. SCHWARZ 668
BREELAND, S. G., see T. F. HALL 242
BROWN, SHARON W., see ROBERT DAVIS 1161
BRYANT, EDWIN H.—A System Favoring the Evolution of Holometabolous Development .. 1087
BULLARD, ALLAN T., AND RICHARD C. FOX—Field Observations on the Pales Weevil, *Hylobius pales*, in the South Carolina Piedmont 722
BURKHOLDER, TIMOTHY J., see GEORGE F. SHAMBAUGH 983
BUSH, GUY L.—Trail Laying by Larvae of *Chlosyne lacinia* 674
BUTZ, ANDREW, see STEPHEN D. HILLIARD ... 71
BYRNE, H. DESMOND—Presenting Results of Tests Involving Biologically Active Materials 671

C

CAMERON, R. SCOTT, see NORMAN E. JOHNSON 909
CARMAN, RAYMOND M., see MICHAEL M. MARTIN 11
CARTER, FAIRIE LYN, see RICHARD V. SMYTHE 335
CHAMBERLAIN, W. F., C. C. BARRETT, AND O. H. GRAHAM—Integumental Absorption Versus Oral Ingestion of Phosphate and Other Materials by Common Cattle Grubs Held in Vitro 843
CHAMBERLAIN, W. F., see D. E. HOPKINS ... 826
CHAMBERS, D. L., AND T. B. O'CONNELL—A Flight Mill for Studies with the Mexican Fruit Fly 917
CHAMBERS, D. L., see H. TASHIRO 935
CHAPMAN, H. C., see J. W. KLIEWER 13
CHAPMAN, J. A.—Winged Ants Return After Removal from a Summit Swarming Site ... 1256
CHAPUT, R. L., AND J. N. LILES—Free and Peptide-Bound Amino Acids During the Larval and Pupal Stages of the Yellow-Fever Mosquito, *Aedes aegypti* 742
CHENG, WEN-YI—Components of the Sterility Induced in Late-Stage Male Pupae of the Sugarcane Gray Borer, *Eucosma schistaceana* (Lepidoptera: Olethreutidae), with Gamma Radiation 1106
CHU, H. M., see D. M. NORRIS 413
CLIFFORD, CARLETON M., see GLEN M. KOHLS 1035
COCHRAN, DONALD G., see MARY H. ROSS 665
COLLINS, H. L., AND H. N. PITRE—Corn Stunt Vector Leafhopper Attractancy to and Oviposition Preference for Hybrid Dent Corn. I. *Dalbulus maidis* 770
COLLINS, H. L., AND H. N. PITRE—Corn Stunt Vector Leafhopper Attractancy to and Oviposition Preference for Hybrid Dent Corn. II. *Graminella nigrifons* 773
COLLINS, J. C., see R. H. ROBERTS 863
COOK, PAUL P., JR., AND ARTHUR L. ANTONELLI—The Nymph of *Amphiagrion abbreviatum* 264
COPPEL, HARRY C., see MICHAEL G. KLEIN ... 1
COPPEL, H. C., see T. R. TORGERSEN 163
COPPEL, HARRY C., see MICHAEL G. KLEIN ... 1259

COSTER, JACK E.—Observations on *Platypus flavicornis* (Coleoptera: Platypodidae) in Southern Pine Beetle Infestations 1008
COULSON, ROBERT N., see FREDRICK T. EHRLICH 931
CROFT, BRIAN A., AND CLIVE D. JORGENSEN—Life History of *Typhlodromus mcgregori* (Acarina: Phytoseiidae) 1261
CROSS, WILLIAM H., AND HENRY C. MITCHELL—Distribution and Importance of *Heterolaccus grandis* as a Parasite of the Boll Weevil 235
CREWE, R. M., J. M. BRAND, AND D. J. C. FLETCHER—Identification of an Alarm Pheromone in the Ant *Crematogaster peringueyi* 1212
CROSS, WILLIAM H., AND WILLIAM L. MCGOVERN—New Parasites, *Zatropis perdubius* and *Megaselia aletiae*, of the Boll Weevil, *Anthonomus grandis* 674
CROSSLEY, D. A., JR., see DAVID E. REICHLE .. 57
CROSSLEY, D. A., JR., see EDWARD F. MENHINICK 711
CRUMPACKER, DAVID W., see WILLIAM B. HEED 388
CUNNINGHAM, HUGH B., see THOMAS D. EICHLIN 507
CUPP, EDDIE W., AND HARLAND W. FOWLER, JR.—Anomalous Dimorphism in *Aedes vexans* 914

D

DARST, PHILIP H., AND EDWIN W. KING—Biology of *Melichares tarsalis* in Association with *Plodia interpunctella* 747
DAVIS, NORMAN T.—Contribution to the Morphology and Phylogeny of the Reduvioidea. Part IV. The Harpactoroid Complex 74
DAVIS, ROBERT, AND SHARON W. BROWN—Some Population Parameters for the Grain Mite, *Acarus siro* 1161
DEBACH, PAUL AND S. C. WARNER—Importation and Colonization of Natural Enemies of the Striped Mealybug, *Ferrisia virgata*, in California 1117
DENMARK, HAROLD A., see MARTIN H. MUMA 406
DIETZ, ALFRED—Initiation of Pollen Consumption and Pollen Movement Through the Alimentary Canal of Newly Emerged Honey Bees 43
DOANE, JOHN F.—Effect of Temperature on Water Absorption, Development, and Hatching in Eggs of the Prairie Grain Wireworm, *Ctenicera destructor* 567
DREW, W. A., see K. W. VICK 380
DREW, W. A., see K. VICK 723
DRONKA, KASIMIERE, see WILLIAM D. MCENROE 466
DROOZ, A. T.—Elm Spanworm Eye Size Depends upon Sex and Diet 561

E

EDDLEMAN, DOUGLAS, AND DAVID SIMON—Note on the Brown Cockroach, *Periplaneta brunnea*, in Texas 678
EHRLICH, FREDRICK T., RUDOLPH T. FRANKLIN, AND ROBERT N. COULSON—Characters for Determining Sex of Pupae of the Oakworms *Anisota senatoria*, *A. stigma*, and *A. virginiensis*, and the Yellow-Necked Caterpillar, *Datana ministra* 931
EHRMAN, LEE, see WILLIAM B. HEED 388
ERTLE, LAWRENCE R., see NORMAN MARSTON .. 1476
EICHLIN, THOMAS D., AND HUGH B. CUNNINGHAM—Characters for Identification of Some Common Plusiine Caterpillars of the Southeastern United States 507
EICHWORT, GEORGE C.—Tribal Positions of Western Hemisphere Green Sweat Bees, with Comments on Their Nest Architecture (Hymenoptera: Halictidae) 652
EISENBRAUN, E. J., see K. W. VICK 380
EISENBRAUN, E. J., see K. VICK 723
ELBADRY, E. A., M. R. ABO ELGHAR, S. M. HASSAN, AND S. M. KILANY—Life History Studies on the Predatory Mite *Agistemus exsertus* 649
ELBADRY, E. A., M. R. ABO ELGHAR, S. M. HASSAN, AND S. M. KILANY—*Agistemus exsertus* as a Predator of Two Tetranychid Mites 660
ESCHLE, J. L., see J. A. MILLER 1046
ESENTHER, G. R.—Termites in Wisconsin 1274
EVANS, I. R., see F. W. ZETTLER 399

F

FARRIER, MAURICE H., see CURTIS MANLEY .. 443
FEIR, DOROTHY, AND GEORGE M. O'CONNOR, JR.—Liquid Nitrogen Fixation: A New Method for Hemocyte Counts and Mitotic Indices in Tissue Sections 246
FIELD, GORDON—Studies of Black Flies of Panama. III. Two New Species of *Simulium* of the Subgenus *Hemicnetha* 157
FIELD, GORDON—Studies of Black Flies of Panama (Diptera: Simuliidae). IV. A New Species of *Simulium* 281
FINNIGAN, BRIAN F., see CARL H. SHANKS, JR. 1490
FISHER, BRADFORD R., see CHESTER G. MOORE 1325
FLESCHNER, C. A., see ASHFAQ H. QURESHI .. 898
FLETCHER, D. J. C., see R. M. CREWE 1212
FLETCHER, JOE, see JAKIE A. HAIR 1208
FOLTZ, JOHN L., see DOUGLAS C. ALLEN 1469
FOOTE, B. A., see KARL VALLEY 227
FOULK, JOSEPH D.—Attack Activity of Two Species of Gnats in Southern California 112
FOWLER, HARLAND W., JR., see EDDIE W. CUPP 914
FOX, RICHARD C., see ALLAN T. BULLARD 722
FOX, RICHARD C., see W. E. KING 924
FRANKIE, G. W., see SARA S. ROSENTHAL 109
FRANKLIN, RUDOLPH T., see FREDRICK T. EHRLICH 931
FREYTAG, PAUL H.—*Jamacerus* and *Optocerus*, Two New Genera of Central American and Jamaican Idiocerinae 348

FURMAN, DEANE P., AND OCTAVIO E. SOUSA—Morphology and Biology of a Nest-Producing Mite, *Bakericheyla chanayi* (Acarina: Cheyletidae) 858

G

GAGNÉ, RAYMOND J.—A Tribal and Generic Revision of the Nearctic Lasiopteridi (Diptera: Cecidomyiidae) 1348
GALE, GLEN R., see MICHAEL M. MARTIN 386
GALLUN, R. L., AND J. H. HATCHETT—Genetic Evidence of Elimination of Chromosomes in the Hessian Fly 1095
GARD, I. E.—A Technique for Transferring Newly Hatched Larvae 1211
GARZA, M., see W. G. HART 855
GERBER, HENRY S., see E. C. KLOSTERMEYER .. 1321
GHOSH, A. K., AND D. N. RAYCHOUDHURI—A New Species of *Megouroparsus* (Homoptera: Aphididae) from Northeast India 952
GILBERT, LAWRENCE I., see KENNETH J. JUDY 1438
GILLILAND, F. R., JR., AND C. E. MCCOY—The Behavior of Newly Emerged Boll Weevils 602
GINGRICH, JOHN B., AND HERBERT T. STREU—Histological, Behavioral, and Symptomatic Effects of Pentac® on *Tetranychus urticae* .. 640
GOEDEN, RICHARD D., see MARCOS KOGAN 319
GOLDSMITH, TIMOTHY H., see CHARLES T. POST, JR. 1497
GOLIK, Z., see R. L. PIENKOWSKI 1241
GOULDING, ROBERT L., see BRIAN T. STURGESS 97
GRAHAM, O. H., see W. F. CHAMBERLAIN 843
GRAVES, PETER N.—Spermatophores of the Blattaria 595
GRAVES, ROBERT C., AND ANNE C. F. GRAVES—Pseudoscorpions and Spiders from Moss, Fungi, Rhododendron Leaf Litter, and Other Microcommunities in the Highlands Area of Western North Carolina 267
GRAVES, ANNE C. F., see ROBERT C. GRAVES .. 267
GREANY, PATRICK D., see EARL R. OATMAN 1407
GREATHEAD, D. J., see E. F. LEGNER 128
GREENBERG, BERNARD—Sterile Culture of *Musca sorbens* 450
GRIMBLE, DAVID G., JOHN C. NORD, AND FRED B. KNIGHT—Oviposition Characteristics and Early Larval Mortality of *Saperda inornata* and *Oberea schaumii* in Michigan Aspen ... 308
GUNNING, B. F., see M. W. WILLIAMS 927
GURNEY, ASHLEY B., see LOUIS M. ROTH 617
GUSS, PAUL L.—Lipolysis of Triglycerides During Cold Storage of Eggs of Corn Rootworms 675
GUTHRIE, F. E., see RAYMOND S. H. YANG ... 141

H

HAIR, JAKIE A., D. E. HOWELL, C. E. ROGERS, AND JOE FLETCHER—Occurrence of the Pharyngeal Bot *Cephenemyia jellisoni* in Oklahoma White-Tailed Deer, *Odocoileus virginianus* 1208
HALL, M. S., see RALPH C. BALLARD 375
HALL, T. F., S. G. BREELAND, AND P. K. ANDERSON—Use of Cherry-Laurel Foliage for Preparation of an Effective Insect-Killing Jar 242
HAMID, ABDUL, K. SAMAD, AND M. A. H. QADRI—Biology of *Brachycorhyphus nursei* (Hymenoptera: Ichneumonidae) in Karachi, Pakistan 1382
HAPP, GEORGE M., AND JAMES WHEELER—Bioassay, Preliminary Purification, and Effect of Age, Crowding, and Mating on the Release of Sex Pheromone by Female *Tenebrio molitor* 846
HARBO, JOHN R., AND KENNETH J. KRAFT—A Study of *Phanerotoma toreutae*, a Parasite of the Pine Cone Moth *Laspeyresia toreuta* 214
HARDEE, D. D., see WILLIAM L. PARROTT 261
HARDEE, D. D., see FOWDEN G. MAXWELL 315
HARMAN, D. M., AND G. A. KRANZLER—Sound Production in the White-Pine Weevil, *Pissodes strobi*, and the Northern Pine Weevil, *P. approximatus* 134
HARMAN, D. M., AND H. M. KULMAN—Dispersion of Released White-Pine Weevils in Intrastand Growth Types 835
HART, W. G., S. INGLE, AND M. GARZA—Current Status of Brown Soft Scale in Citrus Groves of the Lower Rio Grande Valley 855
HASSAN, S. M., see E. A. ELBADRY 649
HASSAN, S. M., see E. A. ELBADRY 660
HATCHETT, J. H.—Race E, Sixth Race of the Hessian Fly, *Mayetiola destructor*, Discovered in Georgia Wheat Fields 677
HATCHETT, J. H., see R. L. GALLUN 1095
HAYNES, JULIAN F., see ALICE M. TREBATOSKI 327
HAYS, R. L., see SIDNEY B. HAYS 663
HAYS, SIDNEY B., R. L. HAYS, AND I. S. MIMS—Comparative Effects of Reserpine and Serotonin Creatine Sulfate on Oviposition in the House Fly 663
HEATON, GEORGE C., see EDWARD H. WOLLERMAN 647
HEED, WILLIAM B., DAVID W. CRUMPACKER, AND LEE EHRMAN—*Drosophila lowei*, a New American Member of the *Obscura* Species Group 388
HENRY, J. E.—Extension of the Host Range of *Nosema locustae* in Orthoptera 452
HESSEL, JOHN H.—The Comparative Morphology of the Dorsal Vessel and Accessory Structures of the Lepidoptera and Its Phylogenetic Implications 353
HEWITT, GEORGE B.—Twenty-six Varieties of Forage Crops Evaluated for Resistance to Feeding by *Melanoplus sanguinipes* 737
HILLIARD, STEPHEN D., AND ANDREW BUTZ—Daily Fluctuations in the Concentrations of Total Sugar and Uric Acid in the Hemolymph of *Periplaneta americana* 71
HO, FRANK K.—Identification of Pupae of Six Species of *Tribolium* (Coleoptera: Tenebrionidae) 1232

HODGES, L. R., AND D. L. MCLEAN—Correlation of Transmission of Bean Yellow Mosaic Virus with Salivation Activity of *Acyrthosiphon pisum* (Homoptera: Aphididae) 1398
HOOGSTRAAL, HARRY, MAKRAM N. KAISER, AND E. COFF PEDERSEN—*Hyalomma (Hyalommina) punt*, n. sp. (Ixodoidea, Ixodidae), a Relict Parasite of Domestic Animals and Gazelles in Arid Areas of Northern Somali Republic ... 415
HOOGSTRAAL, HARRY, see MAKRAM N. KAISER 885
HOPKINS, D. E., AND W. F. CHAMBERLAIN—In Vitro Colonization of the Goat Biting Lice, *Bovicola crassipes* and *B. limbata* 826
HORN, DAVID J., see ROBERT F. W. SCHRODER 812
HORTA, M. A., see J. H. BORDEN 444
HOWELL, GORDON S., JR., AND FOWDEN G. MAXWELL—Attractant and Feeding Responses of Hickory Shuckworm Larvae to Certain Extracts of Pecan Shucks 240
HOWELL, D. E., see JAKIE A. HAIR 1208
HOXIE, ROBERT P., see STANLEY G. WELLSO .. 923
HSIEH, FENG-KUO, see ROBERT L. PIENKOWSKI 1268
HUGGANS, J. L., see ROBERT F. W. SCHRODER 812
HUNG, AKEY C. F.—The Chromosome Numbers of Six Species of Formicine Ants 455
HUNTER, ALICE S., AND ALFONSO NAVARRO—A Natural Population of *Drosophila* (Diptera: Drosophilidae) in Columbia 1101

I

INGLE, S., see W. G. HART 855

J

JACOBSON, M., see P. E. SONNET 667
JACOBSON, M., see M. SCHWARZ 668
JALIL, MAZHAR—Internal Anatomy of the Developmental Stages of the Two-Spotted Spider Mite 247
JENKINS, JOHNIE N., see WILLIAM L. PARROTT 255
JENKINS, JOHNIE N., see WILLIAM L. PARROTT 261
JENKINS, JOHNIE N., see FOWDEN G. MAXWELL 315
JENKINS, JOHNIE N., see WILLIAM L. PARROTT 976
JENSEN, GARY L., AND C. S. KOEHLER—Biological Studies of *Scythropus californicus* on Monterey Pine in Northern California 117
JOHNSON, CLARENCE D.—The Lectotype of *Bruchus julianus* 676
JOHNSON, NORMAN E., AND PAUL MARTIN—*Amydria effrentella* from Nests of Mountain Beaver, *Aplodontia rufa* 396
JOHNSON, NORMAN E., AND R. SCOTT CAMERON—Phytophagous Ground Beetles 909
JOINER, RONALD L., AND EDWARD N. LAMBREMONT—Hydrocarbon Metabolism in Insects: Oxidation of Hexadecane-1-^{14}C in the Boll Weevil and the House Fly 891
JONES, ELEANOR K., see GLEN M. KOHLS 1035
JORGENSEN, CLIVE D., see BRIAN A. CROFT ... 1261
JUDY, KENNETH J., AND LAWRENCE I. GILBERT—Morphology of the Alimentary Canal During the Metamorphosis of *Hyalophora cecropia* (Lepidoptera: Saturniidae) 1438

K

KACZYNSKI, V. W., JAN ZUSKA, AND C. O. BERG—Taxonomy, Immature Stages, and Bionomics of the South American Genera *Perilimnia* and *Shannonia* (Diptera: Sciomyzidae) 572
KAISER, MAKRAM N., AND HARRY HOOGSTRAAL—The Subgenus *Persicargas* (Ixodoidea, Argasidae, *Argas*). 7. *A. (P.) walkerae*, New Species, a Parasite of Domestic Fowl in Southern Africa 885
KAISER, MAKRAM N., see HARRY HOOGSTRAAL . 415
KAMM, JAMES A.—Change in Transmissibility of Bean Yellow Mosaic Virus by Aphids ... 47
KAMRAN, MERVYN A., AND EDWARD S. RAROS—Insect Parasites in the Natural Control of Species of Rice Stem Borers on Luzon Island, Philippines 797
KANUNGO, K.,—Acarine Molting—The Migration of Hemocytes through the Epidermis of *Caloglyphus berlesei* 155
KARAHALIOS, C., see C. VAKIRTZI-LEMONIAS 1290
KASHIN, PHILIP—The Role of Gamma-Aminobutyric Acid in Mosquito-Host Interactions: A Hypothesis 695
KAUFMANN, TOHKO—The Life History and Feeding Habits of *Opatroides punctulatus* in Tiberias, Israel 236
KAUFMANN, TOHKO—Life History of *Upis ceramboides* at Fairbanks, Alaska 922
KAYA, HARRY K., AND Y. TANAKA—Response to High Temperature of the Parasite *Apanteles militaris* and of Its Host, the Armyworm, *Pseudaletia unipuncta* 1303
KEARBY, W. H., AND D. M. BENJAMIN—Life History and Damage of the Pine Root Tip Weevil, *Hylobius rhizophagus*, in Wisconsin 838
KEARBY, W. H., AND D. M. BENJAMIN—A Cage for Studying Root Wounding of Pine by the Pine Root Tip Weevil, *Hylobius rhizophagus* 1499
KEARBY, WILLIAM H., see JOHN M. SKELLY .. 932
KHALAF, KAMEL T.—Distribution and Phenology of *Culicoides* (Diptera: Ceratopogonidae) Along the Gulf of Mexico 1153
KILANY, S. M., see E. A. ELBADRY 649
KILANY, S. M., see E. A. ELBADRY 660
KING, EDGAR G., JR., AND WILLIAM T. SPINK—Foraging Galleries of the Formosan Subterranean Termite, *Coptotermes formosanus*, in Louisiana 536

KING, W. E., AND RICHARD C. FOX—Notes on mum Rainfall Conditions for Spring Emergence of the Carrot Beetle, *Bothynus gibbosus* (Coleoptera: Scarabaeidae) 1336
KING, EDWIN W., see PHILIP H. DARST 747
KING, W. E., and RICHARD C. FOX—Notes on Biology of Clerid Beetles that Attack *Ips* spp. in Upper South Carolina 924
KINSEY, M. G., see D. L. MCLEAN 987
KISTNER, DAVID H., AND JACQUES M. PASTEELS—A New Tribe, Genus, and Species of Termitophilous Aleocharinae (Coleoptera: Staphylinidae) from South-West Africa with a Description of Its Integumentary Glands ... 1189
KLASSEN, WALDEMAR, see LONNA H. REINECKE 511
KLEIN, MICHAEL G., AND HARRY C. COPPEL—The Pine Chrysomelid, *Glyptoscelis pubescens*, in Northwestern Wisconsin 1
KLEIN, MICHAEL G., AND HARRY C. COPPEL—Hemocytopoietic Organs in Larvae of the Introduced Pine Sawfly, *Diprion similis* 1259
KLIEWER, J. W., T. MIURA, AND H. C. CHAPMAN—Seasonal Occurrence and Physiology of *Culex tarsalis* in Foothills of Fresno County, California 13
KLOSTERMEYER, E. C., AND HENRY S. GERBER—Nesting Behavior of *Megachile rotundata* (Hymenoptera: Megachilidae) Monitored with an Event Recorder 1321
KNIGHT, FRED B.—Egg Production by the Engelmann Spruce Beetle, *Dendroctonus obesus*, in Relation to Status of Infestation .. 448
KNIGHT, FRED B., see DAVID G. GRIMBLE 308
KNIGHT, FRED B., see DOUGLAS C. ALLEN ... 1469
KNOP, NANCY F., see JAMES A. SLATER 1221
KOEHLER, C. S., see SARA S. ROSENTHAL 109
KOEHLER, C. S., see Gary L. JENSEN 117
KOGAN, MARCOS, AND RICHARD D. GOEDEN—A Photometric Technique for Quantitative Evaluation of Feeding Preferences of Phytophagous Insects 319
KOHLS, GLEN M., CARLETON M. CLIFFORD, AND ELEANOR K. JONES—The Systematics of the Subfamily Ornithodorinae (Acarina: Argasidae). IV. Eight New Species of *Ornithodoros* from the Western Hemisphere 1035
KRAFT, KENNETH J., see JOHN R. HARBO 214
KRANTZ, G. W.—The Mites of Quintana Roo. I. A New Species of *Eutrachytes* from the Yucatan Peninsula, with Observations on the Classification of the Genus 62
KRANZLER, G. A., see D. M. HARMAN 134
KRISHNA, S. S., AND A. K. SINHA—Feeding Activity of *Epilachna vigintiocto-punctata* on *Luffa aegyptiaca* 450
KRISHNA, S. S., AND A. K. SINHA—Chemosensory Relationship Between *Epilachna vigintioctopunctata* and Its Host Plant, *Luffa aegyptiaca* 928
KRUITWAGEN, ELS, see FRANK E. STRONG 148
KULMAN, H. M., see D. M. HARMAN 835
KUMAR, K., see G. S. SHUKLA 664
KUMAR, R.—Morphology and Relationships of the Pentatomoidea (Heteroptera). III. Natalicolinae and Some Tessaratomidae of the Uncertain Position 681

L

LACHANCE, LEO E., AND ANN P. LEVERICH—Chemosterilant Studies on *Bracon* Sperm. II. Studies of Selected Compounds for Induction of Dominant Lethal Mutations or Sperm Inactivation 790
LAGACE, C. F.—A New Species of Mesidia (Hymenoptera: Aphelinidae) from California 530
LAGACE, C. F.—Observations on the Biology of *Mesidia nigra*, a Parasite of *Iziphya punctata* 532
LAING, J. E.—Life History and Life Table of *Metaseiulus occidentalis* 978
LALL, SURESH B.—Effect of Starvation on the Sensitivity of Tarsal and Labellar Contact Chemoreceptors in *Hybomitra lasiophthalma* (Diptera: Tabanidae) 1217
LAMBREMONT, EDWARD N., see RONALD L. JOINER 891
LANDERS, P. L., see R. C. BERBERET 446
LAVIGNE, ROBERT J.—Bionomics and Nest Structure of *Pogonomyrmex occidentalis* (Hymenoptera: Formicidae) 1166
LAW, M. W., see P. E. SONNET 667
LAW, M. W., see M. SCHWARZ 668
LECATO, G. LEONARD, III, see ROBERT L. PIENKOWSKI 1268
LEE, B. LAMAR, AND MAX H. BASS—Rearing Technique for the Granulate Cutworm and Some Effects of Temperature on Its Life Cycle 1216
LEGNER, E. F., AND D. J. GREATHEAD—Parasitism of Pupae in East African Populations of *Musca domestica* and *Stomoxys calcitrans* 128
LEGNER, E. F., AND G. S. OLTON—Migrations of *Hippelates collusor* Larvae from Moisture and Trophic Stimuli and Their Encounter by *Trybliographa* Parasites 136
LEGNER, E. F.—Adult Emergence Interval and Reproduction in Parasitic Hymenoptera Influenced by Host Size and Density 220
LEGNER, E. F.—Reproductive Isolation and Size Variation in the *Muscidifurax raptor* Complex 382
LEVERICH, ANN P., see LEO E. LACHANCE .. 790
LEWIS, STANLEY E.—Lepidopterous Larval-Mining of an Oak (?) Leaf from the Latah Formation (Miocene) of Eastern Washington 1210
LEWIS, W. J., AND L. M. REDLINGER—Suitability of Eggs of the Almond Moth, *Cadra cautella*, of Various Ages for Parasitism by *Trichogramma evanescens* 1482
LILES, J. N., see R. L. CHAPUT 742

LINDSAY, KAY L.—Cornicles of the Pea Aphid, *Acyrthosiphon pisum;* Their Structure and Function. A Light and Electron Microscope Study 1015
LINLEY, J. R.—Studies on Larval Development in *Culicoides furens* (Poey) (Diptera: Ceratopogonidae) 702
LINSLEY, E. GORTON, AND RAY F. SMITH—Robert Leslie Usinger (1912-1968) ..... (Obit.) 1218
LONDONO, RUBY L., see S. BRADLEIGH VINSON 1340
LUKEFAHR, M. J., see FOWDEN G. MAXWELL .. 315
LUKEFAHR, M. J., AND FOWDEN G. MAXWELL—The Differential Resistance Mechanism in Female *Hampea* sp. Trees to the Boll Weevil 542

M

MACCONNELL, JOHN G., see MICHAEL M. MARTIN 11
MACCONNELL, JOHN G., see MICHAEL M. MARTIN 386
MADDOX, D. M.—Sex Determination of Pupae of *Vogtia malloi* (Lepidoptera: Phycitidae) 1212
MAHESWARY, NARAYAN P., see RALPH B. TURNER 1091
MANLEY, CURTIS, AND MAURICE H. FARRIER—Attraction of the Nantucket Pine Tip Moth, *Rhyacionia frustrana,* to Incadescent Light and Blacklight, and to Virgin Females 443
MANLEY, THOMAS R.—Sexual Characters of the Instars of *Blaberus discoidalis* and an Analysis of Growth in This Cockroach 734
MARIN, ANGELICA, see M. M. BARNES 1032
MARSTON, NORMAN, AND LAWRENCE R. ERTLE—Host Age and Parasitism by *Trichogramma minutum* (Hymenoptera: Trichogrammatidae) 1476
MARTIN, MICHAEL M., RAYMOND M. CARMAN, AND JOHN G. MACCONNELL—Nutrients Derived from the Fungus Cultured by the Fungus-Growing Ant *Atta colombica tonsipes* .. 11
MARTIN, MICHAEL M., JOHN G. MACCONNELL, AND GLEN R. GALE—The Chemical Basis for the Attine Ant-Fungus Symbiosis. Absence of Antibiotics 386
MARTIN, MICHAEL M., AND NEAL A. WEBER—The Cellulose-Utilizing Capability of the Fungus Cultured by the Attine Ant *Atta colombica tonsipes* 1386
MARTIN, PAUL, see NORMAN E. JOHNSON 396
MATHUR, L. M. L.—Morphology of the Nervous System of Adult *Prodenia litura* 525
MATTINGLY, ELLEN, AND SHIRLEY OGLE—A New Culture Method for *Rhynchosciara* ... 94
MATTSON, WILLIAM J., see DOUGLAS C. ALLEN 1469
MAU, RONALD F. L., see WALLACE C. MITCHELL 1246
MAULDIN, JOE K., see WILLIAM L. PARROTT .. 255
MAXWELL, FOWDEN G., D. D. HARDEE, W. L. PARROTT, JOHNIE N. JENKINS, AND J. J. LUKEFAHR—*Hampea* sp., Host of the Boll Weevil. I. Laboratory Preference Studies .. 315
MAXWELL, FOWDEN, G., see GORDON S. HOWELL, JR. 240
MAXWELL, FOWDEN G., see WILLIAM L. PARROTT 255
MAXWELL, FOWDEN G., see WILLIAM L. PARROTT 261
MAXWELL, FOWDEN G., see M. J. LUKEFAHR .. 542
MAXWELL, FOWDEN G., see WILLIAM L. PARROTT 976
MCCLAREN, M., see J. H. BORDEN 444
MCCOY, C. E., see F. R. GILLILAND, JR. 602
MCCRORY, H. F., see R. H. ROBERTS 863
MCCULLOUGH, BRO. THOMAS, C.S.C.—Chemical Analysis of the Scent Fluid of *Leptoglossus clypeatus* 673
MCCULLOUGH, BRO. THOMAS, C.S.C.—Chemical Analysis of the Scent Fluid of *Pasimachus californicus* and *P. duplicatus* (Coleoptera: Carabidae) 1492
MCCULLOUGH, BRO. THOMAS, C.S.C.—Chemical Analysis of the Scent Fluid of *Dicaelus purpuratus* (Coleoptera: Carabidae) 1493
MCCULLOUGH, BRO. THOMAS, C.S.C.—Chemical Analysis of the Defensive Scent Fluid Produced by the Ground Beetle *Calosoma peregrinator* 1498
MCENROE, WILLIAM D., AND KASIMIERE DRONKA—Eyes of the Female Two-Spotted Spider Mite, *Tetranychus urticae.* II. Behavioral Analysis of the Photoreceptors 466
MCENROE, WILLIAM D.—Eyes of the Female Two-Spotted Spider Mite, *Tetranychus urticae.* I. Morphology 461
MCDANIEL, B., AND WENDELL MORRILL—A New Species of *Tetrapolipus* from *Hippodamia convergens* from South Dakota (Acarina: Podopolipidae) 1465
MCFADDEN, M. W.—Successful Laboratory Mating of *Apanteles congregatus,* a Parasite of the Tobacco Hornworm, *Manduca sexta* .. 342
MCIVER, SUSAN B.—Antennal Sense Organs of Female *Culex tarsalis* (Diptera: Culicidae) 1455
MCLEAN, D. L., AND M. G. KINSEY—Probing Behavior of the Pea Aphid, *Acyrthosiphon pisum.* IV. Effects of Starvation on Certain Probing Activities 987
MCLEAN, D. L., see L. R. HODGES 1398
MCGOVERN, WILLIAM L., see WILLIAM H. CROSS 674
MCGURK, D. J., see K. W. VICK 380
MCGURK, D. J. see K. VICK 723
MCMAHAN, ELIZABETH A.—Effects of Ionizing Radiation on Three Neotropical Termite Species 120
MEDLER, J. T., see T. R. YONKE 477
MEDLER, J. T., see T. R. YONKE 477

MEDLER, J. T., see T. R. YONKE 469
MENHINICK, EDWARD F., AND D. A. CROSSLEY, JR.—Radiation Sensitivity of Twelve Species of Arthropods 711
MENZER, R. E., see WILLIAM F. WALKER 7
MESSENGER, P. S.—Bioclimatic Studies of the Aphid Parasite *Praon exsoletum*. 2. Thermal Limits to Development and Effects of Temperature on Rate of Development and Occurrence of Diapause 1026
MEYER, P. F., see D. GRAHAM TWEEDY 1494
MEYERS, JOHN, AND T. MILLER—Starvation-Induced Activity in Cockroach Malpighian Tubules 725
MILLER, J. A., J. L. ESCHLE, AND I. L. BERRY—Patterns of Flight Activity in Livestock Insects. 1. Preliminary Testing of a System for Recording Flight Activty of the Stable Fly 1046
MILLER, T.—A Thermistor Thermometer for Physiological Preparations 443
MILLER, T., see JOHN MEYERS 725
MIMS, I. M., see SIDNEY B. HAYS 663
MITCHELL, HENRY C., see WILLIAM H. CROSS 235
MITCHELL, WALLACE C., AND RONALD F. L. MAU—Sexual Activity and Longevity of the Southern Green Stink Bug, *Nezara viridula* 1246
MIURA, T., see J. W. KLIEWER 13
MIYAZAKI, SATORU, see G. MALLORY BOUSH .. 19
MODI, B. N., see R. R. RAWAT 953
MONROE, R. E., see J. W. BAUER 1021
MOORE, CHESTER G., AND BRADFORD R. FISHER—Competition in Mosquitoes. Density and Species Ratio Effects on Growth, Mortality, Fecundity, and Production of Growth Retardant 1325
MOORE, R. F., JR., AND H. M. TAFT—Effect of Melatonin on Egg Production of the Boll Weevil, *Anthonomus grandis* 252
MORENO, D., see H. TASHIRO 279
MORENO, DANIEL S., see RICHARD E. RICE ... 558
MORENO, D., see H. TASHIRO 935
MORRILL, WENDELL L.—Parasitization of *Nabis alternatus* by *Leucostoma simplex* in Eastern South Dakota 240
MORRILL, WENDELL, see B. MCDANIEL 1465
MUMA, MARTIN H., AND HAROLD A. DENMARK—The *Conspicua* Species-Group of *Typhlodromina* Muma, 1961 406

N

NAIR, K. K., see N. M. G. BHAKTHAN 1495
NAULT, L. R., AND R. H. E. BRADLEY—Acquisition of Maize Dwarf Mosaic Virus by the Greenbug, *Schizaphis graminum* 403
NAULT, L. R., AND W. E. STYER—The Dispersal of *Aceria tulipae* and Three Other Grass-Infecting Eriophyid Mites in Ohio ... 1446
NAVARRO, ALFONSO, see ALICE S. HUNTER 1101
NAYAR, J. K.—The Pupation Rhythm in *Aedes taeniorhynchus* (Diptera: Culicidae). V. Physiology of Growth and Endogenous Diurnal Rhythm of Pupation 1079
NEFF, S. E., AND J. B. WALLACE—Observations on the Immature Stages of *Cordilura (Achaetella) deceptiva* and *C. (A.) varipes* .. 775
NEFF, S. E., AND J. B. WALLACE—Biology and Description of Immature Stages of *Orthacheta hirtipes*, a Predator of *Cordilura* spp. 785
NORD, JOHN C., see DAVID G. GRIMBLE 308
NORDIN, G. L., AND J. E. APPLEBY—Bionomics of the Juniper Webworm 287
NORLAND, JEROME F., see LONNA H. REINECKE 511
NORRIS, D. M., J. M. BAKER, AND H. M. CHU—Symbiontic Interrelationships Between Microbes and Ambrosia Beetles. III. Ergosterol as the Source of Sterol to the Insect .. 413
NORRIS, D. M., AND J. M. BAKER—Nutrition of *Xyleborus ferrugineus*. I. Ethanol in Diets as a Tunneling (Feeding) Stimulant 592
NORRIS, DALE M., see THOMAS K. BORG 730
NORRIS, DALE M., see STANLEY J. BARRAS 1284
NOVAK, J. A., see KARL VALLEY 227
NUTTING, W. L., AND H. G. SPANGLER—The Hastate Setae of Certain Dermestid Larvae: an Entangling Defense Mechanism 763
NUTTING, WILLIAM L., see ROGER G. BLAND .. 419

O

OATMAN, EARL R., GARY R. PLATNER, AND PATRICK D. GREANY—The Biology of *Orgilus lepidus* (Hymenoptera: Braconidae) a Primary Parasite of the Potato Tuberworm ... 1407
OATMAN, EARL R., see ASHFAQ H. QURESHI .. 898
O'CONNOR, GEORGE M., JR., see DOROTHY FEIR 246
OGLE, SHIRLEY, see ELLEN MATTINGLY 94
OLDFIELD, GEORGE N.—The Biology and Morphology of *Eriophyes emarginatae*, a *Prunus* Finger Gall Mite, and Notes on *E. prunidemissae* 269
OLIVER, A. D., JR., see EVERARDO VOGEL 749
OLSON, DANIEL C., AND ROY W. RINGS—Responses of Spotted Cutworm Larvae to Various Intensities and Wavelengths of Light .. 941
OLSON, DANIEL C., AND ROY W. RINGS—Climbing Responses of the Spotted Cutworm, *Amathes c-nigrum* 1403
OLTON, G. S., see E. F. LEGNER 136
ORME, J. P. R., see E. E. SMISSMAN 246
ORTMAN, ELDON E., see TERRY F. BRANSON .. 808
OSBORN, ANDREW W.—Polymorphism in Males of the Sugarcane Leafhopper, *Perkinsiella saccharicida* 247
OSBORN, ANDREW W.—Parasitism Associated with Brachypterous Males in the Sugarcane Leafhopper, *Perkinsiella vitiensis* 669
OSBURN, MAX, see WILLIAM J. SCHROEDER ... 1401

P

PARKER, FRANK D.—On the Subfamily Astatinae. Part VI. The American Species in the Genus *Dryudella* Spinola (Hymenoptera: Sphecidae) 963
PARROTT, WILLIAM L., FOWDEN G. MAXWELL, JOHNIE N. JENKINS, AND JOE K. MAULDIN—Amino Acids in Hosts and Nonhosts of the Boll Weevil, *Anthonomus grandis* 255
PARROTT, WILLIAM L., FOWDEN G. MAXWELL, JOHNIE N. JENKINS, AND D. D. HARDEE—Preference Studies with Hosts and Nonhosts of the Boll Weevil, *Anthonomus grandis* ... 261
PARROTT, WILLIAM L., FOWDEN G. MAXWELL, AND JOHNIE N. JENKINS—*Hampea* sp., Host of the Boll Weevil. II. Laboratory Antibiosis Studies 976
PARROTT, W. L., see FOWDEN G. MAXWELL ... 315
PASCHKE, J. D., see ROBERT C. ANDERSON 1316
PASTEELS, JACQUES M., see DAVID H. KISTNER 1189
PEDERSEN, E. COFF, see HARRY HOOGSTRAAL .. 415
PEDERSEN, KNUD B., see DAVID W. WALKER .. 21
PIENKOWSKI, R. L., AND Z. GOLIK—Kinetic Orientation Behavior of the Alfalfa Weevil to Its Host Plant 1241
PIENKOWSKI, ROBERT L., FENG-KUO HSIEH, AND G. LEONARD LECATO III—Sexual Dimorphism and Morphometric Differences in the Eastern, Western, and Egyptian Alfalfa Weevils 1268
PIENKOWSKI, R. L., see S. D. SPRINGER 904
PIMENTEL, DAVID, see G. J. C. SMITH 305
PITRE, H. N.—Field Studies on the Biology of the Alfalfa Weevil, *Hypera postica*, in Northeast Mississippi 1485
PITRE, H. N., see H. L. COLLINS 770
PITRE, H. N., see H. L. COLLINS 773
PLATNER, GARY R., see EARL R. OATMAN 1407
POLHEMUS, JOHN T.—Lectotype Designations for Some Saldidae (Hemiptera) Described by P. R. Uhler 1207
POST, CHARLES T., JR., AND TIMOTHY H. GOLDSMITH—Physiological Evidence for Color Receptors in the Eye of a Butterfly 1497
PRICE, ROGER D.—Three New Species of *Psittacobrosus* from Brazilian Parrots 393
PRICE, ROGER D.—Three New Species of *Heteromenopon* (Mallophaga: Menoponidae) from Brazilian and Australian Parrots 563
PRICE, ROGER D., see STEPHEN O. RYAN 815
PRICE, ROGER D., see STEPHEN O. RYAN 823
PRUESS, K. P.—Food Preference as a Factor in Distribution and Abundance of *Phoetaliotes nebrascensis* 323
PUND, W. A., see R. H. ROBERTS 863

Q

QADRI, M. A. H., see ABDUL HAMID 1382
QURESHI, ASHFAQ H., EARL R. OATMAN, AND C. A. FLESCHNER—Biology of the Spider Mite *Tetranychus evansi* 898

R

RABB, R. L.—Diapause Characteristics of Two Geographical Strains of the Tobacco Hornworm and Their Reciprocal Crosses 1252
RABB, R. L., AND RICHARD THURSTON—Diapause in *Apanteles congregatus* 125
RABINOVICH, JORGE E.—The Applicability of Some Population Growth Models to a Single-Species Laboratory Population 437
RAHALKAR, G. W., see C. ADEESAN 670
RANDOLPH, N. M., see GEORGE L. TEETES 1461
RAROS, EDWIN S., see MERVYN A. KAMRAN .. 797
RAWAT, R. R., AND B. N. MODI—Studies on *Nephus regularis* (Coleoptera: Coccinellidae) as a Predator of the Striped Mealybug in Madhya Pradesh (India) 953
RAYCHOUDHURI, D. N., see A. K. GHOSH 952
REDLINGER, L. M., see W. J. LEWIS 1482
REICHLE, DAVID E., MARVIN H. SHANKS, AND D. A. CROSSLEY, JR.—Calcium, Potassium, and Sodium Content of Forest Floor Arthropods 57
REICHLE, D. E.—Lethal Effects of Gamma Radiation on Eggs and Larvae of the Bagworm, *Thyridopteryx ephemeraeformis* 1113
REINECKE, LONNA H., WALDEMAR KLASSEN, AND JEROME F. NORLAND—Damage to Testes and Recovery of Fertility in Boll Weevils Fed Chemosterilants 511
REXRODE, CHARLES O.—Population Increase of Two Species of *Pseudopityophthorus* in Oak Branches 448
RICE, RICHARD E., AND DANIEL S. MORENO—Marking and Recapture of California Red Scale for Field Studies 558
RICHARDS, A. GLENN—Oxygen Consumption of the American Cockroach Under Complete Inanition Prolonged to Death 1313
RICHARDS, A. GLENN, see PATRICIA A. RICHARDS 249
RICHARDS, PATRICIA A., AND A. GLENN RICHARDS—Intranuclear Crystals in the Midgut Epithelium of a Flea 249
RICHARDSON, C. G., see B. H. WILSON 1043
RIEMANN, JOHN G., AND BARBARA J. THORSON—Comparison of Effects of Irradiation on the Primary Spermatogonia and Mature Sperm of Three Species of Diptera 613
RIEMANN, JOHN G., AND BARBARA J. THORSON—Effect of Male Accessory Material on Oviposition and Mating by Female House Flies 828
RINGS, ROY W.—Larval Behavior of *Eupsilia morrisoni* 544
RINGS, ROY W., see DANIEL C. OLSON 941
RINGS, ROY W., see DANIEL C. OLSON 1403
RITCHER, PAUL O.—Spiracles of Adult Scarabaeoidea (Coleoptera) and Their Phylogenetic Significance. I. The Abdominal Spiracles 869
RITCHER, PAUL O.—Spiracles of Adult Scarabaeoidea (Coleoptera) and Their Phyloge-

netic Significance. II. Thoracic Spiracles and Adjacent Sclerites 1388
ROBERTS, R. H., W. A. PUND, H. F. MCCRORY, J. W. SCALES, AND J. C. COLLINS—Culicidae and Tabanidae as Potential Vectors of Anaplasmosis in Mississippi 863
ROCK, GEORGE C.—Sterol and Water-Soluble Vitamin Requirements for Larvae of the Red-Banded Leaf Roller, *Argyrotaenia velutinana* 611
RODRIGUEZ, CARMEN L., see NIILO VIRKKI ... 457
ROGERS, C. E., see JAKIE A. HAIR 1208
ROMOSER, WILLIAM S., AND CARL E. VENARD —The Myoblastic Masses and Neural Tissue Associated with the Proventriculus of Larvae of *Aedes triseriatus, A. aegypti,* and *Anopheles quadrimaculatus* 345
ROOT, RICHARD B., AND JORMA O. TAHVANAINEN—Role of Winter Cress, *Barbarea vulgaris,* as a Temporal Host in the Seasonal Development of the Crucifer Fauna 852
ROSAY, BETTINA—Anatomical Indicators for Assessing Age of Mosquitoes: Changes in Ovarian Follicles 605
ROSENTHAL, SARA S., G. W. FRANKIE, AND C. S. KOEHLER—Biological Studies of *Argyresthia franciscella* and *A. cupressella* on Ornamental Cupressaceae 109
ROSS, MARY H., AND DONALD G. COCHRAN—Red-Rose Linkage in the German Cockroach 665
ROTH, LOUIS M.—The Evolution of Male Tergal Glands in the Blattaria 176
ROTH, LOUIS M., AND ASHLEY B. GURNEY—Neotropical Cockroaches of the *Epilampra abdomennigrum* Complex; a Clarification of Their Systematics (Dictyoptera, Blattaria) 617
RUDINSKY, J. A., see I. A. SCHNEIDER 39
RYAN, STEPHEN O., AND ROGER D. PRICE—A Review of the Genus *Eidmanniella* (Mallophaga: Menoponidae) from the Pelecaniformes 815
RYAN, STEPHAN O., AND ROGER D. PRICE—The New Genus *Fregaticlla* (Mallophaga: Menoponidae) for *Menopon aurifasciatum* from the Frigate-Bird 823

S

SAMAD, K., see ABDUL HAMID 1382
SARDESAI, J. B.—Relationship of Size of Fecal Pellets to Larval Molts in Lepidoptera 662
SCALES, J. W., see R. H. ROBERTS 863
SCHAEFER, CARL W., AND DARLEEN WILCOX—Notes on the Morphology, Taxonomy, and Distribution of the Idiostolidae (Hemiptera-Heteroptera) 485
SCHENK, JOHN A., AND DANIEL M. BENJAMIN Notes on the Biology of *Ips pini* in Central Wisconsin Jack Pine Forests 480
SCHMID, J. M.—*Laphria gilva* (Diptera: Asilidae), a Predator of *Dendroctonus ponderosae* in the Black Hills of South Dakota 1237
SCHNEIDER, I. A., AND J. A. RUDINSKY—Mycetangial Glands and Their Seasonal Changes in *Gnathotrichus retusus* and *G. sulcatus* ... 39
SCHNEIDER, I., AND J. A. RUDINSKY—Anatomical and Histological Changes in Internal Organs of Adult *Trypodendron lineatum, Gnathotrichus retusus,* and *G. sulcatus* (Coleoptera: Scolytidae) 995
SCHRODER, ROBERT F. W., J. L. HUGGANS, DAVID J. HORN, AND GEORGE T. YORK—Distribution and Establishment of *Tetrastichus incertus* in the Eastern United States 812
SCHROEDER, WILLIAM J., AND MAX OSBURN—Rearing the Hickory Shuckworm, *Laspeyresia caryana,* on Artificial Diet, with Notes on Biology 1401
SCHWARZ, M., see P. E. SONNET 667
SCHWARZ, M., B. H. BRAUN, M. W. LAW, P. E. SONNET, N. WAKABAYASHI, R. M. WATERS, AND M. JACOBSON—Compounds Related to Juvenile Hormone. III. 668
SCULLEN, HERMAN A., AND JANET L. WOLD—Biology of Wasps of the Tribe Cercerini, with a List of the Coleoptera Used as Prey 209
SELANDER, RICHARD B., AND RICHARD C. WEDDLE—The Ontogeny of Blister Beetles (Coleoptera, Meloidae). II. The Effects of Age of Triungulin Larvae at Feeding and Temperature on Development in *Epicauta segmenta* .. 27
SHALABY, A. M.—Host-Preference Observations on *Anopheles culicifacies* (Diptera: Culicidae) in Gujarat State, India 1270
SHAMBAUGH, GEORGE F.—Toxicity and Effects on Motor Coordination of Some Neurotropic Drugs on the Cockroach *Nauphoeta cinerea* 370
SHAMBAUGH, GEORGE F., AND TIMOTHY J. BURKHOLDER—Effects of Some Neurotropic Drugs on Endogenous Activity of the Central Nervous System of the Cockroach *Nauphoeta cinerea* 983
SHANKS, CARL H., JR., AND BRIAN F. FINNIGAN—Behavior, Survival, and Reproduction of the Strawberry Aphid on Holidic Diets and Host and Nonhost Plants 1490
SHANKS, MARVIN H., see DAVID E. REICHLE .. 57
SHARMA, R. K., AND H. H. SHOREY—Occurrence of a Two-Headed Pupa in a Population of *Tribolium confusum* (Coleoptera: Tenebrionidae) 1205
SHOREY, H. H., R. J. BARTELL, AND L. B. BARTON—Sexual Stimulation of Males of *Lucilia cuprina* (Calliphoridae) and *Drosophila melanogaster* (Drosophilidae) by the Odors of Aggregation Sites 1419
SHOREY, H. H., see R. K. SHARMA 1205
SHOREY, H. H., see R. J. BARTELL 1206
SHUKLA, G. S., AND K. KUMAR—Studies on the Alimentary Canal of *Odoiporus longicollis.* I. Morphology 664
SHULOV, A., see U. YINON 172
SHULOV, AHARON, see SYRIL A. BLONDHEIM .. 881
SIMON, DAVID, see DOUGLAS EDDLEMAN 678

SIMON, JEAN-PIERRE—Esterase Isozymes in the Mosquito *Culex pipiens fatigans:* Developmental and Genetic Variation 1307
SIMON, ROGER P., AND ALLEN W. BENTON—A Method for Mass Collection of Wasp Venoms 277
SINHA, A. K., see S. S. KRISHNA 450
SINHA, A. K., see S. S. KRISHNA 928
SINHA, R. N.—Reproduction of Stored-Grain Insects on Varieties of Wheat, Oats, and Barley 1011
SKELLY, JOHN M., AND WILLIAM H. KEARBY—A New Technique to Observe the Activity of Cambium Miners 932
SLATER, JAMES A., AND NANCY F. KNOP—Geographic Variation in the North American Milkweed Bugs of the *Lygaeus kalmii* Complex 1221
SLATER, CATHERINE E., see JOHN H. BORDEN .. 454
SMITH, CLYDE F.—Pemphiginae Associated with the Roots of Conifers in North America (Homoptera: Aphididae) 1128
SMITH, G. J. C., AND DAVID PIMENTEL—The Effect of Two Host Species on the Longevity and Fertility of *Nasonia vitripennis* 305
SMITH, EDWARD LAIDLAW—Evolutionary Morphology of External Insect Genitalia. 1. Origin and Relationships to Other Appendages .. 1051
SMITH, RAY F., see E. GORTON LINSLEY 1218
SMISSMAN, E. E., AND J. P. R. ORME—A Yellow Mutant Strain of the Large Milkweed Bug, *Oncopeltus fasciatus,* that Lacks Erythropterin 246
SMITH, S. G., AND B. A. SUGDEN—Host Trees and Breeding Sites of Native North American *Pissodes* Bark Weevils, with a Note on Synonymy 146
SMYLY, MARGARET O., see F. W. ZETTLER 399
SMYTHE, RICHARD V., AND FAIRIE LYN CARTER—Feeding Responses to Sound Wood by the Eastern Subterranean Termite, *Reticulitermes flavipes* 335
SOLOMON, JAMES D.—Woodpecker Predation on Insect Borers in Living Hardwoods 1214
SOLON, BERNARD M., see KENNETH W. STEWART 1433
SOMMERS, ROBERT A., see JOSEPH E. WEAVER 337
SONENSHINE, DANIEL E., AND JOYCE A. TIGNER—Oviposition and Hatching in Two Species of Ticks in Relation to Moisture Deficit 628
SONNET, P. E., B. H. BRAUN, M. W. LAW, M. SCHWARTZ, N. WAKABAYASHI, R. H. WATERS, AND M. JACOBSON—Compounds Related to Juvenile Hormone. II. 667
SONNET, P. E., see M. SCHWARZ 668
SOUSA, OCTAVIO E., see DEANE P. FURMAN .. 858
SPANGLER, H. G., see W. L. NUTTING 763
SPECHT, H. B.—Hyperparasitism of the Pea Aphid Parasite *Aphelinus semiflavus* by *Asaphes vulgaris* in a Greenhouse 1207
SPINK, WILLIAM T., see EDGAR G. KING, JR. 536
SPRINGER, S. D., AND R. L. PIENKOWSKI—Humidity Preference of the Alfalfa Weevil, *Hypera postica,* as Affected by Microenvironmental and Physiological Conditions 904
SRIVASTAVA, R. P., AND JATAN KUMARI BOGAWAT—The Nervous System of a Fruit-Sucking Moth, *Othreis materna* 958
STEPHEN, W. P., see D. GRAHAM TWEEDY ... 1494
STERNBURG, J. G., AND G. P. WALDBAUER—Bimodal Emergence of Adult Cecropia Moths Under Natural Conditions 1422
STEWART, KENNETH W., GERALD L. ATMAR, AND BERNARD M. SOLON—Reproductive Morphology and Mating Behavior of *Perlesta placida* (Plecoptera: Perlidae) 1433
STEYSKAL, GEORGE G.—New Species of Empididae of the Genera *Empis, Hilara,* and *Hormopeza* from Georgia, with a Synopsis of the North American Species of *Hormopeza* 292
STIMMANN, N. W.—Seasonal History of a Unisexual Population of the Pine Needle Scale, *Phenacaspis pinifoliae* 930
STINER, FREDERIC M.—Overwintering by *Protocalliphora metallica* (Diptera: Calliphoridae) 1205
STREU, HERBERT T., see JOHN B. GINGRICH .. 640
STRONG, FRANK E., AND ELS KRUITWAGEN—Feeding and Nutrition of *Lygus hesperus.* III. Limited Growth and Development on a Meridic Diet 148
STURGESS, BRIAN T., AND ROBERT L. GOULDING—Abundance and Microdistribution of Larval Chironomidae in Stabilization Lagoons 97
SUGDEN, B. A., see S. G. SMITH 146
STYER, W. E., see L. R. NAULT 1446

T

TAFT, H. M., see R. F. MOORE, JR. 252
TAHVANAINEN, JORMA O., see RICHARD B. ROOT 852
TAMHANKAR, A. J., see C. ADEESAN 670
TANAKA, Y., see HARRY K. KAYA 1303
TASCHENBERG, E. F.—Large-Scale Continuous Rearing of the Grape Berry Moth, *Paralobesia viteana* 1374
TASHIRO, H., J. B. BEAVERS, AND D. MORENO—Comparative Response of Two Strains of California Red Scale, *Aonidiella aurantii,* Males to Pheromone Extract and to Females of the Reciprocal Strain 279
TASHIRO, H., D. L. CHAMBERS, D. MORENO, AND J. BEAVERS—Reproduction in the California Red Scale, *Aonidiella aurantii.* III. Development of an Olfactometer for Bioassay of the Female Sex Pheromone 935
TEETES, GEORGE L., AND N. M. RANDOLPH—Seasonal Abundance and Parasitism of the Sunflower Moth, *Homoeosoma electellum* in Texas 1461
THOMPSON, PATRICK H.—Collecting Methods for Tabanidae (Diptera) 50
THOMPSON, PATRICK H.—Feeding of *Forcipomyia fairfaxensis* on Grass Frogs (*Rana* spp.) in New Jersey 451

THOMPSON, PATRICK H.—Abundance and Seasonal Distribution of the Tabanidae of the Great Swamp, New Jersey. Part II. The Second Year 1429
THORSON, BARBARA J., see JOHN G. RIEMANN 613
THORSON, BARBARA J., see JOHN G. RIEMANN 828
THURSTON, RICHARD, see R. L. RABB 125
THUT, RUDOLPH N.—Feeding Habits of Larvae of Seven *Rhyacophila* (Trichoptera: Rhyacophilidae) Species with Notes on Other Life-History Features 894
TIGNER, JOYCE A., see DANIEL E. SONENSHINE 628
TORGERSON, RICHARD L., AND ROGER D. AKRE—Reproductive Morphology and Behavior of a Thysanuran, *Trichatelura manni,* Associated with Army Ants 1367
TORGERSEN, T. R., AND H. C. COPPEL—Parasites of *Rhyacionia buoliana* and Their Occurrence at Different Crown Levels of Red Pine in Wisconsin 163
TOWNE, J. C., see M. W. WILLIAMS 927
TREBATOSKI, ALICE M., AND JULIAN F. HAYNES—Comparison of Enzymes of Twelve Species of Mosquitoes 327
TURNER, RALPH B., AND NARAYAN P. MAHESWARY—Biochemical Effects of Apholate on Mosquito Ovarian Tissues 1091
TWEEDY, D. GRAHAM, P. F. MEYER, AND W. P. STEPHEN—A Controlled Light and Temperature Apparatus for Recording Insect Emergence 1494
TZANAKAKIS, M. E., see C. VAKIRTZI-LEMONIAS 1290

V

VAKIRTZI-LEMONIAS, C., C. KARAHALIOS, AND M. E. TZANAKAKIS—Lipids of the Adult Olive Fruit Fly. Total Lipids and Major Lipid Fractions 1290
VALLEY, KARL, J. A. NOVAK, AND B. A. FOOTE—Biology and Immature Stages of *Eumetopiella rufipes* 227
VENARD, CARL E., see WILLIAM S. ROMOSER .. 345
VICK, K., W. A. DREW, D. J. MCGURK, E. J. EISENBRAUN, AND G. R. WALLER—Identification of Hydrocarbons from *Novomessor cockerelli* 723
VICK, K. W., W. A. DREW, E. J. EISENBRAUN, AND D. J. MCGURK—Comparative Effectiveness of Aliphatic Ketones in Eliciting Alarm Behavior in *Pogonomyrmex barbatus* and *P. comanche* 380
VINSON, S. BRADLEIGH—General Morphology of the Digestive and Internal Reproductive Systems of Adult *Cardiochiles nigriceps* (Hymenoptera: Braconidae) 1414
VINSON, S. BRADLEIGH, RUBY L. LONDONO, AND A. C. BARTLETT—Effect of Gamma Radiation on Tissues of the Tobacco Budworm, *Heliothis virescens* 1340
VIRKKI, NIILO, DAVID W. WALKER, AND CARMEN L. RODRIGUEZ—Excision of Gonads from Immature *Diatraea* 457
VOGEL, EVERARDO, AND A. D. OLIVER, JR.—Life History and Some Factors Affecting the Population of *Arzama densa* in Louisiana .. 749
VOORHEES, FRANK RAY—Seven-Legged Mirid (Hemiptera: Miridae) 1492

W

WAKABAYASHI, N., see P. E. SONNET 667
WAKABAYASHI, N., see M. SCHWARZ 668
WALDBAUER, G. P., see A. K. BHATTACHARYA 925
WALDBAUER, G. P., see J. G. STERNBURG 1422
WALKER, DAVID W., AND KNUD B. PEDERSEN—Population Models for Suppression of the Sugarcane Borer by Inherited Partial Sterility 21
WALKER, DAVID W., see NIILO VIRKKI 457
WALKER, THOMAS J.—Systematics and Acoustic Behavior of United States Crickets of the Genus *Orocharis* (Orthoptera: Gryllidae) .. 752
WALKER, THOMAS J.—Systematics and Acoustic Behavior of United States Crickets of the Genus *Cyrtoxipha* (Orthoptera: Gryllidae) .. 945
WALKER, WILLIAM F., AND R. E. MENZER—Chorionic Melanization in the Eggs of *Aedes aegypti* 7
WALLACE, J. B., AND M. S. BLUM—Refined Defensive Mechanisms in *Chrysomela scripta* .. 503
WALLACE, J. B., see S. E. NEFF 775
WALLACE, J. B., see S. E. NEFF 785
WALLER, G. R., see K. VICK 723
WARGO, M. J., see M. M. BARNES 1032
WARNER, S. C., see PAUL DEBACH 1117
WARNER, ROSE ELLA—The Genus *Phrydiuchus,* with the Description of Two New Species (Coleoptera: Curculionidae) 1293
WATERS, R. M., see P. E. SONNET 667
WATERS, R. M., see M. SCHWARZ 668
WEAVER, JOSEPH E., AND ROBERT A. SOMMERS—Life History and Habits of the Short-Tailed Cricket, *Anurogryllus muticus,* in Central Louisiana 337
WEBB, J. C., see H. R. AGEE 1248
WEBER, NEAL A.—Three Years of Growth of a *Sericomyrmex* Colony 244
WEBER, NEAL A., see MICHAEL M. MARTIN ... 1386
WEDDLE, RICHARD C., see RICHARD B. SELANDER 27
WELLSO, STANLEY G., AND ROBERT P. HOXIE—*Hyalomyodes triangulifer* Parasitizing the Cereal Leaf Beetle, *Oulema melanopus* 923
WESELOH, RONALD M.—Biology of *Cheiloneurus noxius,* with Emphasis on Host Relationships and Oviposition Behavior 299
WHEELER, JAMES, see GEORGE M. HAPP 846
WILCOX, DARLEEN, see CARL W. SCHAEFER ... 485
WILLIAMS, C. S., see M. W. WILLIAMS 927

WILLIAMS, M. W., C. S. WILLIAMS, B. F. GUNNING, AND J. C. TOWNE—Oxygen Consumption of the Western Horse Lubber Grasshopper 927
WILLIAMS, ROGER W.—Add Water-"Instant" Culicoides 929
WILSON, B. H., AND C. G. RICHARDSON—Tabanid Hosts in Estuarine and Alluvial Areas of Louisiana 1043
WILSON, B. H.—Tabanid Larval Habitats and Population Densities in an Alluvial Area in Southern Louisiana 1203
WITTER, JOHN A., AND GENE D. AMMAN—Field Identification and Sex Determination of *Aphidecta obliterata*, an Introduced Predator of *Adelges piceae* 718
WITTER, J. A.—Laboratory Studies on the Developmental Period and Feeding Behavior of *Aphidecta obliterata* (L.) (Coleoptera: Coccinellidae), an Introduced Predator of the Balsam Woolly Aphid 1004
WOLD, JANET L., see HERMAN A. SCULLEN 209
WOLLERMAN, EDWARD H., CAROL ADAMS, AND GEORGE C. HEATON—Continuous Laboratory Culture of the Locust Borer, *Megacyllene robiniae* 647
WOODRING, J. P.—Observations on the Biology of Six Species of Acarid Mites 102
WOOLDRIDGE, CORRINE R., AND DAVID P. WOOLDRIDGE—Internal Damage in an Aquatic Beetle Exposed to Sublethal Concentrations of Inorganic Ions 921
WOOLDRIDGE, DAVID P., see CORRINE R. WOOLDRIDGE 921
WRIGHT, JAMES E.—Photoperiodic Induction of Diapause in Larvae of the Winter Tick, *Dermacentor albipictus* 285

Y

YANG, RAYMOND S. H., AND F. E. GUTHRIE—Physiological Responses of Insects to Nicotine 141
YINON, U., AND A. SHULOV—Response of Some Stored-Product Insects to *Trogoderma granarium* Pheromones 172
YONKE, T. R., AND J. T. MEDLER—Description of Immature Stages of Coreidae. 1. *Euthochtha galeator* 469
YONKE, T. R., AND J. T. MEDLER—Description of Immature Stages of Coreidae. 2. *Acanthocephala terminalis* 474
YONKE, T. R., AND J. T. MEDLER—Description of Immature Stages of Coreidae. 3. *Archimerus alternatus* 477
YORK, GEORGE T., see ROBERT F. W. SCHRODER 812
YOUNG, RONALD M.—Field Notes on a Feeding Swarm of *Cheiroplatys clunalis* 927
YOUNG, RONALD M.—Field Observations on a Midwinter Breeding Flight of *Diamesa arctica* (Diptera: Chironomidae) 1204

Z

ZETTLER, F. W., MARGARET O. SMYLY, AND I. R. EVANS—The Repellency of Mature Citrus Leaves to Probing Aphids 399
ZUSKA, JAN, see V. W. KACZYNSKI 572